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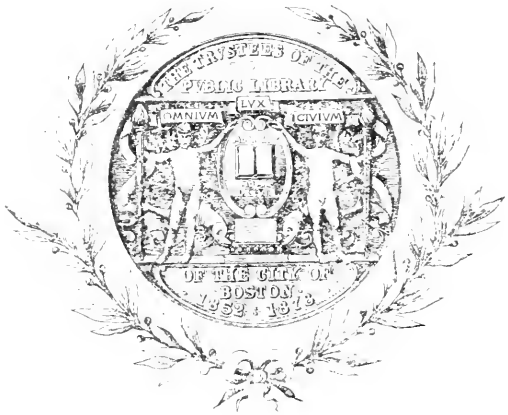
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A PRACTICAL TREATISE

ON

THE DISEASES

OF THE

SEXUAL ORGANS OF WOMEN,

BY

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TRANSLATED FROM THE FRENCH OF DRS. H. DOR AND A. SOCIN,

And Annotated, with the Approval of the Author, by

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TO A FATHER,

WHOSE MORE THAN THREE SCORE AND TEN YEARS HAVE NOT DIMMED HIS INTELLECT CHILLED HIS HEART, NOR SCARCE WEAKENED HIS FRAME;

WHOSE PRECEPTS AND EXAMPLE

HAVE EVER BEEN A CONSTANT STIMULANT TO A LIFE OF LABOR;

AND

TO THE MEMORY OF A SAINTED MOTHER,

WHOSE APPROBATION

IS STILL THE INCENTIVE TO AND THE REWARD OF EVERY WORTHY ACT,

This Volume is Reverentially Inscribed

BY THE

TRANSLATOR AND EDITOR.

PREFACE

BY THE AMERICAN TRANSLATOR.

Had I fully appreciated the amount of labor involved in the translation and editing of an American edition of this work, I should not have ventured on so great a responsibility. Having, however, once commenced, I found myself unconsciously sustained by the interest the volume excited in my mind, and the further my task progressed, the stronger grew the conviction that I should be doing a good deed in presenting to the profession of my country this treatise of the celebrated teacher of Würzburg—a work which, on its subject, I think is unequalled in the German, French, or English languages.

In the etiology, pathology, and therapeutics of female diseases, with all the improvements which have been realized during the last twenty years, this volume is exceedingly rich; while in its arrangement it is so methodical that it must constitute one of the best text-books for students, and one of the most reliable aids to the busy practitioner.

The Paris translation, of which the present is an English version, was subjected to the revision of the author. The valuable notes which the French translators have added are

retained with the initials of the writers, while those of myself are inclosed in brackets [ ], and have been incorporated in the text on account of their practical character.

To the indulgent public, who have so kindly received my previous labors, this volume, whose only defects are those of translation, is respectfully submitted.

A. K. G.

NEW YORK, 141 East 13th Street.
February, 1861.

AUTHOR'S PREFACE.

THE peculiar characteristic of the development of the medical sciences in our age, is a general tendency to arrive at the result which is to be attained in the study of medicine by means of careful research and earnest labor in each of its branches. Especially during the last twenty years, the study of what is denominated medical *specialties* has exerted a happy influence upon the progress of practical medicine.

While at the commencement of this era, physicians were divided into but two categories, according as they devoted themselves to operative medicine or internal pathology, in the course of the few last years we have seen studious and active men—at first in rather small numbers, but soon much more numerous—applying themselves to the study of certain very limited portions of the whole domain of medicine.

It is to their efforts that we owe the progress, as well theoretical as practical, which has been made within the last few years, in all that pertains to ophthalmic medicine, to accouchements, to gynecology, to the diseases of children, to skin diseases, etc.; and these advances are so considerable in each of the branches which we have cited, that a physician must conse-

crate thereto all his time and all his labor if he wishes, in an entirely satisfactory manner, to respond to all that might with justice be exacted of him.

We should wander too far if we should attempt to prove here the utility of this re-division of labor among all the members of the medical body; furthermore, it is now well recognized that the complaints which have for some years been heard from all sides against the excessive subdivisions of medicine cease to be heard. On the contrary, every one recognizes that this is the only means to advance medical science, and to enable ourselves to meet, as far as possible, the just demands of suffering humanity. But what has still better demonstrated the utility of this new tendency is the fact that now-a-days there is no physician who would dare to boast that he thoroughly knows all the branches of medicine and is equally good as an oculist, dermatologist, accoucheur, or gynecologist, etc.

But it is not only the physicians who recognize that a single individual is not capable of embracing all the branches of medical science; it is the same with the councils who preside over the study of medicine. In fact, we every day see the various universities create new chairs for each specialty, and organize for each of them clinics for practical teaching; and all those who have the advancement of our science at heart will thankfully see such measures taken.

Among these specialties, the study of the physiological and pathological functions of the sexual organs of women does not occupy the last place. Stimulated by the studies of French physicians, the accoucheurs of Germany and England have taken hold of this branch of pathology with a kind of predilection; and it is to their efforts that to-day we see gynecology arrived at such a position, that, in a scientific point of view

as well as in a practical one, it yields in nothing to other specialties.

The extraordinary progress that pathological anatomy (and that of the genital organs of women in particular) has made in the last ten years has had a marked influence upon this rapid development of gynecology. It is that which has given us a just explanation of a great number of the most important symptoms which had previously been misinterpreted; and on the other side, it is also upon it that the just appreciation is based of the causes which may influence the prognosis and the treatment of the diseases which now engage our attention, in such a manner that we may claim that the origin of scientific gynecology runs back to that of pathological anatomy, and that it is intimately united to this latter science.

The same thing has occurred in gynecology as in other specialties; that is to say, there were but a small number of physicians who were able to acquire a great experience in this branch. In Germany these were especially the accoucheurs who occupied themselves more or less exclusively about it; and if it were necessary for us to write the history of German gynecology, we should see in the first rank all the names of the attendants on Lucina. This is easily understood, if it is remembered how the pathological alterations of these organs affect their physiological functions during pregnancy, labor, and the lying-in state, without the knowledge of which a study really useful to gynecology is utterly impossible; while, on the other hand, the accoucheur who does not know very exactly all the affections of the sexual organs will not be able to meet the demands of the present age.

Gynecology and the art of midwifery should reciprocally be complete, and it is impossible to make a serious study of one

without considering, with the greatest care, all the resources offered to us by the other; and we may truly affirm, that an accoucheur who desires to be able to practise with real success ought also to devote himself to the study of gynecology. Peculiar circumstances have allowed us to acquire a large experience as well in midwifery as in that which relates to the pathology of the sexual organs of woman. After having, during a long series of years, profited by the very considerable resources which the hospice of Prague affords for the study of midwifery, we received the charge of one of the departments of the great hospital of that city, into which only gynecological cases entered.

We were thus, during three consecutive years, able to avail ourselves, for our gynecological studies, of an opportunity which is offered to but few; and we should admit that the loss of so rich a field for observation relating to the special diseases of women, was a source of great chagrin for us when we left Prague to reside in Würzburg. However, we had the satisfaction to see that at Würzburg we could continue the study which we had embraced with such predilection, for soon patients came from far and near to consult us. Furthermore, the Council having the direction of the St. Julius Hospital set aside for clinical study the wards of this hospital especially designed for the diseases of females, and we were very grateful.

After what has been said we shall not be denied a certain experience in all that pertains to gynecology; and the ten years during which we have been particularly occupied with this branch will enable us to draw practical conclusions from our numerous and detailed observations. We think that we are sufficiently familiarized with our subject to be able to

place ourselves in the list of authors who have treated the diseases of women, without our being on that account accused of a want of modesty. We would, however, have deferred still longer the publication of this work, if our position as professor of gynecology had not forced us to acknowledge that Germany does not possess, properly speaking, any work which in this respect answers as well to the wants of students as to those of practitioners of medicine. Generally speaking, neither class have the time nor the desire to thoroughly study the immense works which we possess on the subject of gynecology; and it is the very extent of these works which seems to be the principal reason that the knowledge of gynecology is still so little extended among the physicians of our country.

It is to remedy this inconvenience that we have decided to publish a *Pathology of the Sexual Organs of Women*, fully treating all these important subjects. This work must in some respects complete our *Treatise on Accouchements*. It therefore must not astonish any one, if we have not entered into the numerous details upon the subject of the affections of the sexual organs of woman peculiar to pregnancy, labor, and the lying-in. As they necessarily are known to accoucheurs, we have spoken of them in our *Treatise on Accouchements*, and if we wished to make place for them here, we should be compelled to make numerous and useless repetitions.

In the present work, we rely, above all, upon our own observations. We do not at all desire to make a simple compilation; therefore, as much as possible, we have avoided citing and judging the opinions of other authors. Still, we shall not be accused of giving too little attention to the labors of other gynecologists, for it will be seen in the course of this work that we are the first to do justice to the labors of another. As

well to avoid this reproach as to acquaint those who are ignorant, with the names and works of the physicians who have rendered the most eminent services to gynecology, and thus to facilitate the comparison of their ideas with our own, we have appended to each important chapter a short bibliographical notice.

We will, however, terminate this introduction by expressing the desire that this work may accomplish the proposed result, that it may excite the student to zealous labor in an important branch of medicine, and that it may be a guide for the practising physician whenever, from the want of sufficiently numerous personal experiences, he may desire the assistance of another. Finally, we ask our colleagues to judge this work charitably, and this they will surely do if they will remember that numerous occupations have barely left the author time to terminate a volume to which, during the last two years, he has devoted the few leisure hours which remained to him.

F. W von Scanzoni.

Wurzburg, *Aug.* 20, 1856.

PREFACE TO THE FRENCH EDITION.

We have undertaken to publish in France a *Practical Treatise on the Diseases of the Sexual Organs of Women*, chiefly because we think that the labors of German gynecologists and their manner of observing are not as well known to the French medical public as they deserve to be. Of all the physicians of Germany, Professor Scanzoni, the author of the present Treatise, and Kiwisch, whose premature death is deplored by all those who have the advance of medical science at heart, are those who have most contributed to elevate gynecology to a height which has not been exceeded in France or England. In fact, if it should be acknowledged that the important reforms which have taken place in Germany in this branch of medicine are, in a great degree, due to the assiduous labors of French and English physicians, it is not less true that German gynecologists, by a conscientious and unbiased examination of the investigations made in all countries, have been able to give a definite solution to some of the most important of the vexed questions. This happy result may partly be explained by the fact, that in Germany the treatment of the diseases of females almost exclusively devolves upon the accoucheur; that is to

say, upon men thoroughly acquainted with the physiology and pathology of the genital organs of woman, and thereby capable of better comprehending, in a scientific and practical point of view, everything which relates to the sexual functions of woman. This is a peculiarity of German gynecology which certainly deserves to be taken into consideration. The present work by Prof. Scanzoni is the one which gives the best idea of the condition of this specialty in Germany. The first edition was exhausted in a few months, which is easily comprehended when we consider the great experience of the author and his well-deserved reputation as a professor and as a practitioner. Furthermore, the works of Prof. Scanzoni are remarkable for exactitude of description, a precision and clearness which in Germany have made them much sought for, as well by physicians as by students. This has been seen in his *Treatise on Accouchements*, which in a few years has already passed through four editions.

On the other hand, we do not see in the French medical literature of latter years, any book embracing in so complete a manner the entirety of the pathology of the sexual organs of woman. This is a reason for the hope that this work may meet with as favorable a reception in France as in Germany.

A long residence at Würzburg, assiduous attendance on the clinic of Scanzoni, the honor of having labored more than a year under the direction and with the counsel of this illustrious professor, the confidence which he has placed in us by requesting us to translate this work—finally, the advantage of having later attended the services of the principal hospitals of Germany, Switzerland, and Paris—such are the guarantees that we make in offering this work to the French medical public.

Prof. Scanzoni having wished to revise this translation, we were unwillingly compelled to delay its publication for some

months, on account of the journey that this professor made to St. Petersburg, to assist at the *accouchement* of Her Majesty the Empress of Russia; but the cause of this delay is itself a recommendation, useless indeed to truth, but showing, nevertheless, the great reputation which the author of this work enjoys.

Dr. H. Dor,
Dr. A. Socin.

June, 1858.

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PRACTICAL TREATISE ON GYNECOLOGY

PART FIRST.

PATHOLOGY AND THERAPEUTICS OF THE DISEASES OF THE UTERUS.

CHAPTER I.

General Remarks upon the Symptoms attendant upon Uterine Diseases.

Of all the organs of the human body, the uterus is unquestionably one of those whose diseases are characterized by the most varied symptoms, and cause in the different parts of the economy the most diverse troubles alike subjective and objective. It is generally as easy to give a plausible explanation of the morbid phenomena manifested by the uterus and its neighboring organs, as it is sometimes difficult to understand the influence of these diseases upon the more remote portions of the frame which have no direct or visible connection with the organ primarily affected. Hence, notwithstanding the immense progress which physiology and pathology have made in our day, we find ourselves too often obliged to explain many of these circumstances, by having recourse to **sympathies,** an expression so vague and susceptible of so many different interpretations, that for solving the question at issue it is worth very little.

But before proceeding to the examination of the phenomena which the nearer or more remote organs present during the course of uterine diseases, we may be permitted to say a few words respecting the local symptoms, mostly subjective, that is to say, appreciable by the patient alone.

Dependent or not upon the state of pregnancy, the uterus represents a hollow muscle furrowed by numerous nerves and vessels, lined upon its inner surface by a mucous membrane, and maintained in its normal position between the bladder and the rectum, partly by folds of the peritoneum, which **envelop** it almost entirely, and partly by special ligaments. Its superior portion is contiguous to the circumvolutions of the small intestines which enter into the pelvis, and its lower portion protrudes into the vagina.

These anatomical dispositions are the cause of numerous groups of symptoms which are manifested either by changes in the sensibility or mobility of the organ, by anomalies in its secretions, or finally, by difficulties in the functions of adjacent organs. The numerous direct and indirect communications of the nerves and vessels of the womb with those of the Fallopian tubes and ovaries may also cause, during the course of uterine diseases, a crowd of secondary affections of these organs. We will successively examine these different symptoms:

1st. In the normal state the uterus possesses but a very feeble degree of **sensibility.** In support of this assertion we should recollect that neither lesions of this organ, nor the greatest degree of contusion (in those cases where it is found incarcerated between the sides of the pelvis and firm and voluminous tumors), will excite painful sensations in the region of the womb. But as soon as by some pathological cause, the inner walls of the uterus become the seat of hyperæmia, slight as it may be, the irritability of the nervous fibre is considerably augmented. This attains to the highest degree when the tissue of the organ is submitted to a continual tension, either by a foreign body contained in its cavity, or by a **neoplasm** of some sort developed in its parenchyma.

In the first case, when the womb is the seat of a hyperæmia, or phlegmasia, the pain is generally continuous and limited to the hypogastric region; still we frequently see it spreading to the sacral and inguinal regions. The patients complain of a sensation of weight or heat in the pelvis, sometimes of a burning pain, drawing or lancinating, in the hypogastric region, and generally heightened by a slight pressure over the pelvis. When, on the other hand, a tension, from a too great dilatation

of the walls of the uterus is the cause of the pain, this is transitory, lasting not more than a half-minute or a minute, and almost always flashing out toward the sacrum or the groins. Patients who have borne children usually compare it to the expulsive pains of childbirth, and, in fact, it seems to have its cause in the pressure which the muscular fibres exert, in contracting upon the nerve-fibres which run through their interstices. We do not doubt that a like contraction actually takes place, for exactly such pains almost always accompany the expulsion of any foreign body from the cavity of the womb, such as particles of mucus, coagulated blood, polypi, etc. These pains, which are ordinarily styled **uterine colic**, offer one peculiarity worthy of observation—which is, that they are not increased by pressure made upon the womb through the abdominal walls. However, we have observed in some cases, that a similar pressure can of itself, in the same manner as during the pains of labor, provoke contractions of the womb, and with them the pains just described, which, when they attain to a high degree, can spread to the lumbar region, the epigastrium, and sometimes even along the inferior extremities, quite to the soles of the feet.

After what we have just said, it is evident that the nature of the pain complained of by the patient is not without a diagnostic value. Still, we are far from wishing to affirm that these distinctions are always so well marked. On the contrary, it often happens that the pain which we shall call **inflammatory** is combined with **expulsive** pain; in which case it is of necessity more difficult for the physician to form a correct opinion as to the real nature of the malady.

2d. Although the inner surface of the uterus is lined with a mucous membrane, the **secretion** from it is, in the normal state, so slight, that by means of a speculum introduced into the vagina, we may examine the uterine orifice for a long time, without perceiving a single drop of mucus flow from it. The truth of this assertion can be verified by observations upon the cadaver; for when the uterus is laid open, but a very small quantity of liquid is found, sufficient only to slightly moisten the mucous surface. The cavity of the neck generally contains more.

When the great number of muciparous follicles contained in

the neck is considered (which Tyler Smith estimates at more than ten thousand) one is not astonished that causes, slight in themselves, may augment the secretion of these glands to such a degree, that the liquid secreted in too great quantity should run out from the vaginal orifice.

When we just said, that in the uterus in its normal state, the most careful exploration could not disclose the slightest flow of mucus, we did not wish to be understood to say, that the liquid secreted by the glands of the neck, was forever retained within the uterine cavity. On the contrary, as each menstrual congestion brings with it an increased secretion of cervical mucus, the cavity of the neck becomes too small to retain so great a quantity, and this flows from the neck either before, during, or after the menstruation proper. Many facts sustain this assertion; we will first cite the well known fact that there is a flow of mucus from the orifice a little before or a little after the periods of women, who, except at this period, do not offer any analogous symptom; secondly, women who have no symptom of leucorrhœa have often stated to us that they remarked a little before the epoch of menstruation, the loss of a small quantity of viscid and transparent mucus; and lastly, it is important to add, that in a woman dying during, or a little after, the menstrual period, the quantity of secreted matter found in the neck of the uterus is much less than when the death occurred between the two periods, or some days before the return of the catamenia.

After what we have said, we think it may be considered that the escape of **cervical** mucus, when the uterus is in a normal state, is ordinarily confined to the menstrual period, and this observation, if it should receive a more general confirmation, would be of great importance for the semeiotic appreciation of discharges from the womb, for on the existence of a flow of mucus from the cavity of the neck, we might then base a certain diagnosis of an abnormal secretion from the mucous membrane, should the investigation be made between two menstrual periods, and not immediately before or after the menses.

The cervical mucus possesses a quality which remains to be mentioned. We have often observed this fact a little after or a little before the sanguineous evacuation, and it appears to us

that it should be ascribed to the intense and sudden congestion of which, at this epoch, the inner surface of the uterus is the seat. We refer to the great liquidity of this mucus, a liquidity that is met with in the greater part of these cases, and which essentially distinguishes it from the mucous flow proceeding from a catarrhal inflammation of the neck. The latter is much more consistent, grumous, and often appears in the form of a plug sticking to the circumference of the orifice and protruding into the vagina, while the normal mucus appears in the form of a watery drop, transparent or slightly yellow, which can easily be removed by a pledget of lint.

As to the chemical properties of the cervical mucus, we have, by numerous investigations, undertaken with the assistance of Prof. Kölliker, entirely confirmed the observations of Donné, Tyler Smith and other savants. We have always found that this liquid possessed an alkaline reaction when we obtained it pure; but we must not neglect to add that these alkaline properties are much less marked, and even entirely disappear when this liquid of which we are speaking is found in contact with the acid mucus secreted by the vaginal mucous membrane. And as it has been equally well determined that the vaginal surface of the os uteri and even the outer borders of the external orifice yield an acid secretion, and that the plug which projects from this orifice must necessarily be in contact with these parts, it is not astonishing that some observers have doubted the alkalinity of the mucus furnished by the cavity of the neck. Furthermore, this liquid undergoes still another modification under the influence of the acids of the vagina. The mucus that is met with in the superior portions of the cavity is always, whether there is a superabundance of the secretion or not, a clear, transparent, colorless liquid, nowhere showing any trace of opacity; it is viscid, glutinous to a high degree, and remains sticking to the fingers. But as soon as it is mixed with the acid mucus of the vagina, it speedily loses its consistence; primarily transparent, its surface is quickly covered with whitish or yellowish striæ or spots. The same modification can be artificially obtained by the addition of a small quantity of acetic acid—a circumstance which would render the hypothesis still more plausible that this metamor-

phosis is due to the action of the acids contained in the vagina. The opacity is very probably caused by a coagulation of the mucus in the superficial layers of the plug; and the action of the acid upon the alkali of the cervical mucus sufficiently explains the neutrality of those portions of the liquid which have undergone the modification just described.

On microscopic examination, the mucus of the neck shows itself in the form of a vitreous, homogeneous mass, holding in suspension the mucous globules rounded or elongated by an external pressure, sometimes also fusiform. These corpuscles are generally found in very great quantity, in part intact, and in part already having undergone decomposition, swollen and containing in them a great number of small gaseous bubbles. The microscope further shows fat globules and scattered pavement epithelial cells, without doubt dragged down by the plug in its passage through the external orifice. We have not found, but in a few cases, the cells of cylindrical epithelium. It remains for us to add that we have never found in the humors of the neck any trace of the vaginal trichomonas, of which we shall give a description when we come to speak of the mucus of the vagina. However, we have sometimes found in cases of abundant hypersecretion, little fungi, like those found in yeast, formed of articulated, cylindrical cells, as well as some vibriones.

3d. The mucous membrane of the uterus is the source of still another secretion, which, however, in the normal condition, only shows itself periodically; this is the **menstrual hæmorrhage.** When the genital organs are not diseased it is not accompanied by any pain.

The blood which flows from the vulva is liquid, and does not coagulate at all. Little abundant during its first hours, the quantity increases soon after and diminishes again toward the end of the flow. It may, perhaps, be estimated in its average at ʒvjss. for the whole period of menstruation. In temperate climates the first appearance of the courses is between the thirteenth and sixteenth year. With most women their return comes on twenty-eight days after the arrest of the preceding flow. Still slight variations are not uncommon, and ought not to be considered as pathologic. The duration of the hæmorrhage is limited to four or five days, yet it is common enough to see

it continue even eight days, or, on the other hand, not to last but two, among persons enjoying the best of health. The number of years during which this regular periodicity of the menstruation is observed, averages twenty-five to thirty-five years; that is to say, that a woman menstruant at fifteen years of age will continue so regularly up to her fortieth or fiftieth year without other interruption than that which takes place during pregnancy and lactation. The modifications which menstruation brings to the pelvic organs, are generally accompanied by other symptoms, such as slight engorgement of the breasts, often a slight, feverish accompaniment of headache, delirium, pains, colics, and eructations, followed by vomitings. However, these last symptoms are less frequent, and very often nothing is remarked but a certain irregularity of temper and a greater irritability; the eyes lose their brilliancy, are surrounded by a bluish circle, and the whole face is a little puffy.

The phenomena of menstruation, which we have described in a few words, may, under the influence of different pathological conditions of the womb, put on the most various modifications. The quantity of blood, for instance, may be increased without limit. In these cases it generally coagulates into clots, more or less voluminous, as soon as the thick acids contained in the vaginal mucus, which in their normal state prevent the coagulation of the blood, can no longer exert their power. Or the quantity of blood may be diminished, the flow of some drops of this liquid being the only sign of the menstrual flux. A case happens, not very rarely, in which the sanguineous secretion is completely arrested. Uterine diseases may also be the cause of the premature, or too tardy appearance of the first menstruation, of the too frequent or too infrequent return of the periods, or of a too great prolongation of the hæmorrhage. Similar causes may also often bring on a sanguineous flux from the womb at that time of life when, in a state of health, the catamenia would have long ceased.

From this short exposition it appears that the various anomalies of menstruation are a symptom of the highest importance in uterine diseases, and that in such cases it is the duty of a physician, by a minute examination, to attain an accurate knowledge of the condition of the genital organs.

4th. Another series of symptoms, not less important, which frequently accompany uterine diseases, is the **functional disturbance of the neighboring organs.** The impaired conditions of the **rectum,** as the most frequent, deserve to be mentioned first. They are of two classes. Almost all the diseases of the uterus characterized by a considerable afflux of blood, by an acute and vigorous congestion of this organ, cause a similar kind of hyperæmia, and an augmentation in the secretions in the lower parts of the intestine, inducing consequently a more or less profuse diarrhœa. The diseases, on the contrary, whose duration is more chronic, and which are accompanied by an increase of volume and by a displacement of the uterus, produce generally the opposite effect, that is to say, a very obstinate and very painful constipation. This last phenomenon is so constant in the classes of cases which we have just cited, that its simple presence is sufficient to make us suspect a disease of the womb. It is the same thing in the varicose condition of the hæmorrhoidal veins which in this kind of cases accompany the constipation.

Although less frequently than the rectum, the **bladder** is very often disturbed in its functions by the morbid states of the uterus. The intimate anatomical relations of these organs sufficiently explain this fact. The different pathological conditions of the womb may not only prevent the regular dilatation of the bladder, but in many cases may also render the evacuation of the urine either difficult or impossible. Therefore tenesmus, retention, incontinence are symptoms very often observed in the diseases now under consideration. The urine long retained in the bladder easily undergoes decomposition, acts in an irritating manner upon its mucous membrane, provokes a catarrhal inflammation, and increases the secretion ; alterations which may alike in their turn become the source of a series of evils and dangers for the patient. The same causes may produce an accumulation of urine in the ureters, in the pelves and calices of the kidneys, and thus produce derangements of no trifling importance to the economy.

The direct communication of the uterus with the Fallopian tubes renders it easy to understand why the diseases of the former spread so easily to the latter. Although these secondary affec-

tions are not usually the cause of perturbations sufficiently s to be noticed by the patient, still it is clear that the devia of the oviducts, their adherence to neighboring organs, accumulation of mucus and other pathological products their cavity, will induce more or less considerable impediment to the progress of the ovule, and thereby exercise a ver injurious influence upon fecundation.

It is also equally common to see certain diseases of the uteru accompanied by analogous affections of the ovaries. Th is especially the case in acute inflammations of these organ Therefore one is not at all astonished, during the course c uterine diseases, to discover symptoms which should be referre to a pathological condition of the ovaries. This is the reaso why women, affected by a disease of the womb, are so ofte found complaining of a sharp and insupportable fixed pain limited to the region of the ovaries. We recognize almost alway as the cause a congested state of this organ, and which is ver often the precursor of a more serious organic disease, which is soon impossible to mistake.

Further, the **vagina** may be diseased in various ways i consequence of a disease of the uterus. Thus, as soon as th augmentation of this organ becomes sufficiently considerable, can easily make an obstacle to the circulation in the vessels the vagina. This chronic stasis gives rise to those anomalie in the secretions of the mucous membrane which so frequentl accompany diseases of the womb. The deviations of position c this organ may also be the cause of various displacements of th vaginal walls, and although it cannot be denied that the pr lapsus of the vagina often precedes that of the uterus, th inverse relation is however quite as frequent. It is equall certain that the retention of the urine, occasioned by the an malies of the womb, to which we just referred, may, by th constantly increasing distention of the base of the bladder, b the cause of a dislocation of the anterior vaginal wall.

Finally, we will add, that certain uterine diseases, accon anied by ichorous and corrosive discharges, may complicat ie case with inflammations and ulcerations of the vagina hich almost always take place in malignant diseases, especiall those of a cancerous nature.

h. The **sympathetic phenomena** which very distant parts so often present during the course of uterine diseases, are also of the highest semeiotic importance.

It is true, that up to the present time this faculty of uterine affections to echo their woes in certain parts of the often very distant nervous system, has not been very satisfactorily explained.

A detailed description of all these phenomena which are effected sometimes by simple irradiation, sometimes by a reflex action of the nervous centres, would lead us too far away. Having only for our object here to show their value for the diagnosis of the diseases which occupy our attention, it will suffice if we enumerate the principal groups of symptoms belonging to this order.

In directing our attention, in the first place, to the organs of digestion, we observe first the fact so generally recognized, that secondary affections of the stomach accompany uterine diseases in a more or less constant manner, shortly after they are manifested by any noteworthy alterations in the texture of the organs. It is especially in cases where the walls of the womb undergo any dragging, however slight, or are even distended by any cause whatever, that one observes most frequently, cardialgic pains, violent vomitings often reproduced periodically, a too great acidity of the gastric juice causing various derangements of digestion, or finally an accumulation of gas, which may become very considerable.

This latter difficulty does not always remain limited to the stomach; it can exist in other portions of the digestive canal, constituting the tympanites, so frequently a symptom of uterine diseases. This tympanites, when it is considerable, may be the cause of a paralysis of the muscular coat of the intestine, which in its turn is soon accompanied by an augmentation in the secretion of the enteric juice, or by a delay in the progress of the fecal matters. It is this which explains the alternate diarrhœas and constipations which are so frequently observed in the course of affections of the uterus. It is almost useless to add that these different troubles in the functions of the digestive canal, which perhaps are, in their origin, due to anomalies of the nervous system, may, when persistent, be followed by

disorders in the assimilation and formation of blood. Thus, we often see women affected with uterine maladies, present, in the course of a certain time, all the symptoms of anæmia or of hydroæmia, even although they have not been exhausted by excessive losses of blood.

If, on the other side, the deleterious influence is considered which a defect in the composition of the blood must necessarily exert upon the nutrition of the central and peripherical portions of the nervous system, it is easily understood why the uterine maladies generally present so great a number of symptoms called nervous or hysterical. The most various forms of mental alienation, the most curious hyperæsthesias and anesthæsias of certain parts of the body, the most persistent neuralgias, and spasmodic contractions spreading often to numerous groups of muscles, claim, if not always, at least very frequently, for sole cause, an affection of the womb. It is only, therefore, by the cure of this latter, that it is possible to to make such symptoms diminish or completely disappear.

This short enumeration of the morbid phenomena which accompany the diseases of the uterus, and which, as has been seen, can be reëchoed in the most distant organs, and even in all parts of the system, suffice to demonstrate the important part that the womb plays in the organization of woman, and the necessity of making a profound study of these different pathological conditions, and of the most efficacious means of combating them.

CHAPTER II.

Exploration of the Uterus.

Art. 1st.—External Exploration.

§ 1.—*Palpation.*

When the normal position of the uterus in the pelvis is considered, it is easily understood, that if this organ has not undergone any increase in size, either physiological or pathological, it cannot be accessible to palpation practised above the pubis. So soon, then, as the fundus of the uterus is perceptible at the hypogastrium, it may be concluded, with certainty, that the size of the organ is increased.

In treating specially of uterine maladies, we shall exhibit, in detail, the differences perceived on abdominal palpation in each of these. We shall show that by it alone, in many cases, the nature of the disease can be determined. At present, we will limit ourselves to taking up the principal points to which it is necessary to pay attention, that we may ascertain with certainty whether the tumor perceived is really due to any augmentation in the dimensions of the womb.

The **situation** of the tumor is of the greatest importance. Although it is not uncommon for the uterus in increasing in volume to deviate from the median line, still it may be taken as a general rule, that the fundus of this organ is placed immediately beneath the symphysis of the pubes. This is especially the case when the uterus in size does not exceed a child's head.

A second point to consider is the **form** of the tumor. With the exception of the case where considerable fibrous bodies bulge out the external surface of the organ, being developed in its walls, the uterus always preserves its spherical form, and can be easily grasped by the hand upon its sides, and on its supe-

rior portion. On the under side, the tumor is not circumscribed, and descends below the superior strait.

In the third place, the degree of **consistence** which the womb presents when there is an augmentation of volume, may also render the diagnosis clearer. Generally, this consistence is very considerable. A slight degree of softness or elasticity is recognizable to the pressure of the hand. This firmness and hardness of the tumor are due to the increase of the walls of the organ in nearly all cases, except where these walls undergo a powerful distention by a rapid and very considerable accumulation of fluid in its cavity. This is what takes place in those rare cases of hydrometra and hæmatometra, where the walls of the organ are found rather thinned than otherwise.

When the uterus is not firmly fixed in its place by neighboring tumors, or by adhesions contracted with the walls of the pelvis or abdomen, it always possesses a certain degree of **mobility,** which can also come in to aid the diagnosis. In seizing the fundus of the uterus, the hand can generally move the tumor with facility from right to left, and *vice-versâ.*

Finally, so far as the **sensibility** of the uterus is concerned in those cases where its volume is augmented, the information is less precise. In general, we may say that when the tumefaction is caused by congestion, or by acute phlegmasia, the lightest pressure will cause the most acute pain. The tumors, which grow slowly, like those caused by chronic metritis, or by fibrous tumors, ordinarily possess a higher degree of sensibility than those which have their point of origin in other organs, such as the ovaries, the broad ligaments, etc. However, it is important to add, that all the parts of the womb do not react alike against an external pressure; on the contrary, it is well endured in certain places, while in others the most insupportable pains are excited.

§ 2.—*Inspection and Auscultation.*

Inspection, in the class of cases now occupying our attention, holds but a place of secondary importance. In truth, it cannot be of any utility for the diagnosis, except when the affection

of the womb produces a considerable increase in the volume of the abdomen, or when there is a prolapsus, and the organ protrudes from the vulva, and thus becomes capable of being seen. However, it is clear, that in the first case the results obtained by palpation will possess incomparably more value. For in a case of swelling of the belly, inspection could recognize only the secondary affections which the abdominal walls present as a consequence of too great distention, such as the discoloration of the median line, the smoothness of the umbilical depression, and the cracks dependent upon the rupture of the network which forms the Malpighian layer; all which phenomena are not characteristic of uterine disease, but are met with in every case where the anterior wall of the belly is submitted to any considerable distention.

We know that the modifications of texture that the uterine walls undergo in consequence of conception, bring also notable changes in the disposition of the vessels and in the circulation of the blood. It is these changes, as well as the compression exerted by the uterus upon the arterial trunks of the pelvis, which cause the production of certain bruits in the vascular system. They are called **uterine bruit or souffle.** We refer the reader to the works which treat upon the obstetric art for more ample details upon the nature and mechanism of this bruit. We will only remark that among all the diseases of the uterus we have only heard the **bruit de souffle** in certain cases of very large fibrous tumors, accompanied by a considerable thickening of the walls of the organ. It results from this observation, that if other symptoms are not present to strengthen the diagnosis of a similar tumor, the presence of the uterine bruit renders the hypothesis of pregnancy extremely probable. It is superfluous to add that doubt would be impossible, if by auscultation the sounds of the fœtal heart were heard as well as the uterine souffle.

Article II.—Internal Exploration.

Internal exploration may be made by the vagina, by the rectum, and by the bladder.

§ 1.— *Vaginal Touch.*

Of all the methods of exploration ancillary to the diagnosis of uterine diseases, the vaginal touch is unquestionably the most important and the most sure. Hence we are convinced that a physician who has not acquired a certain dexterity in this respect, will never possess the confidence necessary to treat successfully the general diseases of the sexual organs of women, and particularly those of the uterus.

It is impossible to give in these general remarks a detailed exposition of the different results obtained by this species of exploration. The changes which the parts accessible to the touch present in the course of the different diseases of the womb, are so varied, that we refer the reader to the chapters of this work which treat of the special pathology of this organ. We will content ourselves for the present, with describing in general, the manner in which the vaginal touch should be practised, still insisting upon the importance and the necessity of being well trained in it.

In the first place, with regard to the position in which we should place the patient: lying upon the back with the hips somewhat elevated, is in the majority of cases the best; still, one should take care not to use a pillow which shall elevate the pelvis of the patient too much, for the result would be to produce too great a distention of the anterior part of the abdomen, and to render difficult the palpation of the hypogastrium, which ought usually to accompany the vaginal touch.

This is why we prefer not to elevate the hips, except when we are persuaded, by the previous introduction of the finger into the vagina, that this is necessary. In the greater number of cases the most suitable manner and the most convenient for the operator, is to pass the hand which is at liberty underneath the hips of the patient, in order to be able, at pleasure, to elevate or depress them; or this can be performed by the aid of an assistant, when it is desirable during the exploration to employ the second hand in palpation of the abdomen.

When the object is to acquire an exact knowledge of an abnormal position of the womb, it is well to make the vaginal

exploration with the patient not only lying, but also erect. This is also necessary in cases of anteversion, retroversion, prolapsus, flexions, etc.

It would be difficult to mention a pathological condition of the uterus or of its appendages, for the diagnosis of which the exploration with a single finger ought not to be sufficient; this is why the touch with several fingers at a time is perfectly useless, and the more so, as it is often very painful for the patient when the vulva is small.

Here we ought to direct the attention of our readers to a point which may sometimes prevent the physician from undertaking a manual exploration of the vagina; we refer to the supposition of the presence of the hymen in young unmarried women. We are far from wishing to pretend that, in every case where disease of the genital organs is suspected, we should compel patients to submit to an examination which wounds their modesty. However, when, from symptoms of disease, we arrive at the conviction that an exact, complete diagnosis is indispensable for proper treatment, we advise that this examination should not be abstained from, from an idea that it is impracticable. In numerous cases we have observed that the laxity of the hymen or the largeness of the opening which is found upon its superior border, permits the introduction of the finger, even with virgins. Very frequently also in many young girls, where one had a right to presume the existence of a hymen, this existed no longer. We cannot, in consequence, place ourselves on the side of those, who, in consideration of the causes we have just mentioned, renounce at the outset all exact exploration, foregoing consequently all precise diagnosis, and betraying the confidence of their patients by the employment of medicaments either useless or directly injurious. Further, it is easy, we will add, to extricate the patients from the embarrassment in which the demand made may have placed them, by simply proposing to them an examination by the rectum. In this manner we can easily convince ourselves if the vaginal touch is practicable or not. This being recognized impossible by the presence of the hymen, the finger must be introduced into the rectum to obtain at least the most necessary information as to the location and nature of the disease.

The vaginal touch ought always to be made in the following manner: The radial border of the index finger should be placed on the perineum and then drawn lightly from behind forward in such a manner that the extremity of the finger penetrates into the vulva, immediately above the posterior commissure of the labia minora. The state of these last, the greater or less inclination of the pelvis, and the form of the hand of the examiner will decide if it is more convenient to flex the three last fingers on the palm of the hand, or to retain them stretched out on the perineum.

The index, once in the vagina, will explore in the first place, with its palmar surface, the walls of this organ, having regard to its laxity, to the greater or less resistance of its tissue, to the normal or abnormal situation of its walls, to the more or less considerable accumulation of mucus, to the presence or absence of tumors, either in the vagina itself, or in the adjacent parts, etc. It is not till after this examination that the extremity of the finger should penetrate further toward the bottom of the organ.

To be able to judge whether we have to do with a normal or pathological condition of the uterus, it is above all necessary to acquire, by frequent practice, an exact knowledge of the relative position and other peculiarities of the uterus in a state of health. To this end we think that the following indications will not fail to be of practical interest.

In the first place we will remark that the **vaginal portion** of the uterus presents marked differences in a woman who has never conceived and in one who has already had one or several pregnancies. In the first case, the neck of the womb is of an almost cartilaginous consistence, of a conical shape, and descends seven to ten lines into the relatively narrow cul-de-sac of the vagina. To measure the length in an exact manner, it is requisite to raise the os tincæ a little, with the extremity of the finger on the side of the cavity of the abdomen, in order to smooth away the fold which the walls of the vagina often form at the place of its insertion with the uterus. This last, drawn either by its own weight or by the pressure which the abdominal viscera exert upon it, often descends a little more deeply into the cavity of the pelvis, pushing before it the bottom of the vagina, in such manner that, in this case, the super-vaginal portion of the neck

becomes accessible to the finger. It is clear that, if account be not taken of this circumstance, we may easily be led to attribute to the os uteri a more considerable length than it in reality possesses.

We have said that in virgins the uterine neck presents the shape of a cone, the base of which is turned upward and the rounded point downward. With some little practice, it is easy to perceive, at its extremity, the little fossa formed by the external orifice.

On pressing a little upon this, the finger experiences a sensation analogous to that given by pressure upon the extremity of the lobule of the nose. The two lips of the orifice are of equal length. If the anterior appears to descend a little lower than the posterior, this is entirely owing to the position of the womb, the fundus of which is directed a little forward—a direction which it maintains even when the woman is reclining, in consequence of the shortness of the anterior ligaments.

In a healthy state the vaginal portion possesses a certain degree of mobility in every way. This is owing partly to the reason that by an inconsiderable pressure the neck can be easily bent upon itself, and partly to the reason that it is possible, up to a certain point, to displace the entire organ.

The surface of the neck is smooth; the mucous membrane, being very adherent to the muscular tissue, cannot be corrugated by any movement of entering or withdrawing of the finger, like that which takes place in certain pathological conditions of the womb. It appears also to be less sensible to the touch than the mucous membrane of the vaginal canal.

The phenomena which we have just described, and which are characteristic of the uterus of a woman who has not conceived, undergo some modifications from the simple fact of the active congestion of which at each menstruation this organ is the seat. At this epoch the uterus increases its size in every direction; its walls, at least their superficial layers, lose their firmness and grow softer. The transversal opening of the mouth of the womb takes a shape more oval, or completely round. The first cause of this phenomenon is, without doubt, the tumefaction which that part of the mucous membrane undergoes, which lines the angles of the opening.

Where a woman has had one or more children, the vaginal portion of the neck is always more voluminous. Ordinarily its transverse diameter then surpasses in length the antero-posterior diameter. The cul-de-sac of the vagina is more spacious, its walls less resisting, the wrinkles and furrows of the mucous membrane less distinct. This laxity allows the finger to enter further and to explore a larger part of the super-vaginal portion of the neck. This is itself softened and patulous, especially when there have been several pregnancies. The orifice of the os uteri usually preserves its transversal shape; but is sufficiently open to permit the extremity of the finger to be buried in it from one to two lines. In the most of these cases a notable elongation of the anterior lip is remarked. The lips and the angles of the orifice present little indentations, more frequently to the left than to the right, or sometimes slight cicatrices which one recognizes by the more considerable resistance of their tissue. Generally the surface of all the mucous membrane surrounding the orifice is no longer smooth and polished. The sensation that one notes is very much like that which velvet gives.

In attending to the peculiarities of the uterine neck which we have just described, in the great proportion of cases it is easy to assure one's self whether the woman has had a child or not. However, it is important to know that these last characteristics which we have described are recognizable where there has been only an abortion, or even when, by the expulsion out of the cavity of some pathological production—as a polypus for example—the opening has been pulled or torn.

We will add, in finishing, that no portion of the body of the uterus can be perceived by the vaginal touch, and when this is possible, it may always be supposed that a morbid state of the organ exists.

§ 2.—*Rectal Touch.*

The exploration of the rectum has for its object to verify the results given by that of the vagina, or indeed to take its place in cases where the obliteration, either physiological or pathological, of the vaginal canal in these cases renders the introduction of the finger impossible. With very rare exceptions but one finger is used for this purpose. In the normal positions of the

pelvic viscera there is scarcely more than the inferior third of the womb accessible to the touch. The first portion which is met by the extremity of the finger when it has penetrated to nearly two inches, is the vaginal portion of the neck. This is more or less clearly perceived, according to the thickness of the anterior wall of the rectum and of the posterior wall of the vagina. It appears in general in the form of a tumor, a little larger than a pigeon's egg, and easily permitting movement. When one has obtained some practice in this sort of exploration, and has taken care to notice the thickness of the membranes which are situated between the finger and the womb, it is easy to judge in a sufficiently precise manner the state in which he finds the inferior portion of the womb. This is why we ought invariably to have recourse to it when we have to do with the diagnosis of a displacement of this organ, a fault in conformation, or any species of tumor.

To the support of this opinion we may add, that in a great number of uterine diseases the inferior portion of the rectum presents a considerable dilatation with laxity of its walls. And this dilatation often spreads to the sphincter itself, in such a manner that the anal touch is much more easy to practise and is attended by scarcely any pain whatever.

Article III.—Exploration by the Aid of the Speculum.

The introduction of the speculum into the practical treatment of the diseases of females is an attainment of our day: it has inaugurated a great advance not only in the diagnosis, but in the therapeutics of the diseases of the genital organs. In fact, without the aid of this instrument the successful and rational treatment of a great number of these diseases would be as impossible as those of the heart and lungs without auscultation and percussion. We, however, have no intention of claiming that the speculum is indispensable for the diagnosis of all the affections of the uterus and the vagina. Still it is not uncommon for the practitioner who uses this instrument to discover morbid changes, of which at first he had not perhaps even suspected the existence, but which it was important for him to know in order to treat his patient with success. We will cite but a

single example from the numerous cases which enter into this category. A woman suffers for a long time from an abundant flow of mucus, with which occasionally a greater or less quantity of blood is mixed. Manual examination discovers only a great relaxation of the vaginal walls with a slight tumidity of the neck. The physician who rests his diagnosis upon these facts, orders divers medicaments, extolled for the treatment of leucorrhœa—injections, hip baths, *cures de bain*, etc.—up to the time when the slight results which he has obtained induce him finally to have recourse to an examination with the speculum. It is not till then that he discovers the veritable cause of the persistence of the disease. He recognizes that the increased secretion has its origin in the uterine cavity, which is inaccessible to the medicaments he has employed; he perceives the excoriations on the margin of the orifice, bleeding at the slightest touch: and the knowledge of these new facts permits him to begin a course of treatment which will cure the patient of her ills in a comparatively short time.

It would be very easy for us to cite a great number of like examples; but we think that the one just mentioned will be sufficient to show the high importance of the practical mode of exploration which now occupies our attention. However, even in our day, many practitioners fail to adopt it. Patients still often come to us whose physicians have treated them for months and years, without once employing the speculum, although the entire group of symptoms rendered the exploration by means of this instrument, indispensable.

But the objection is made that the modesty of patients is a powerful obstacle to the general introduction of the speculum into practice. It is our experience that even the most timid woman will not refuse an examination when its necessity and utility are presented to her with proper seriousness; and we are fully persuaded that where the physician fails, it is for want of sufficient earnestness on his part.

The immense practical results which the use of the speculum yields can be still better comprehended, if one reflects that by it alone, we can procure the necessary knowledge as to the color, the more or less wrinkled condition of the vaginal mucous membrane, and the nature of its secretion. The speculum alone

can tell us if there be a loss of substance (excoriation, ulceration) upon the lips of the orifice, if the mucus which flows from the vulva is but a secretion of the vagina, or if indeed that of the uterus is mixed with it.

Besides, it is often by the speculum only that the source of a hæmorrhage can be recognized. We might enlarge to infinity the enumeration of the resources of this instrument for making a diagnosis. But in order to avoid needless repetitions we will not do so, for we shall frequently return to this subject in specially treating of the diseases of the uterus and the vagina. We will only add, that, aside from the investigation of the internal parts, the use of this instrument may have still another object, and enable us to make the application of topical treatment, such as caustics, astringent solutions, unguents, etc. Later also, we shall have occasion to return with fuller details to this point of therapeutics.

As for the shape of this instrument, we have in the first place a choice between two fundamental systems. Speculums are either cylindrical, conical, of a single piece, or they are broken into parts; that is to say, composed of several pieces or valves. These latter are mostly metallic.

We have experimented with instruments of the most diverse construction, and we are convinced that none of those which are now known completely answer the purpose.

When a simple exploration is all that is desired, the glass speculum of Fergusson deserves, without doubt, the preference over all others. It is composed of a tube of glass, whose exterior extremity enlarges like the bell of a trumpet, while the uterine extremity has the appearance of a cone truncated perpendicularly to its axis, or rather more or less

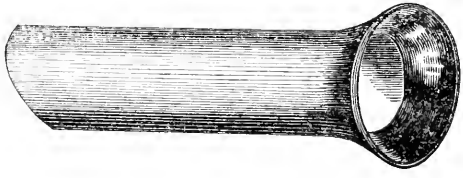

Fig. 1.—Fergusson's Speculum.

aslant. The exterior surface of this tube is covered with a thin sheet of silver, which is itself protected by a layer of

a compact and solid substance of the appearance of papier-maché and varnished externally. The great advantage of this instrument is the light that it throws on the part examined. At the same time, the little conductibility for heat of the exterior layers renders its introduction within the vagina less disagreeable to the patient. We have proved its excellence in so large a number of cases, that we cannot too warmly recommend it. But as it may happen that every one cannot obtain one of these instruments, which are only made in England, France, and the United States, we will add that the porcelain ones made by Charles Mayer, of Berlin, will serve as a very good substitute. It is true, that the brilliant and polished surface of this sort of material does not reflect the light so strongly as the mirror of the Fergusson instrument, as is acknowledged by Mayer himself, still it gives sufficient light to enable one to recognize, with facility, the diseases which affect the parts which are explored.

At any rate the porcelain speculum deserves to be preferred to metallic instruments of tin, brass, or Britannia. They offer, moreover, as well as those of Fergusson, the great advantage of permitting the use of liquid caustics, which will not in the least injure their interior surface, and they are also much easier to clean.

We believe, therefore, that they will soon obtain general preference over every other speculum, the more so, as the cases are very rare in which the metallic instruments present great advantages. For diagnosis neither the bivalve speculum of Ricord, nor the three-valved of Ségalas, nor the four-valved of Charrière will render as good service as those of glass, such as we have described. They do not light up the vagina and neck so well, and do not facilitate the recognition of the color of these parts in so clear a manner. The separation of their valves is always more or less painful to the patient, and their coming together may sometimes wound the vagina by pinching some fold of the mucous membrane. This is why, since we have learned to appreciate the glass speculum, we do not any longer use the metal instruments which formerly we employed exclusively.

[A marked improvement over Charrière's four-valved instru-

ment is that herewith shown as modified and made by Tiemann & Co., of N. Y. It will be seen that the extremities are rounded, which prevents the necessity of the cumbrous and use-

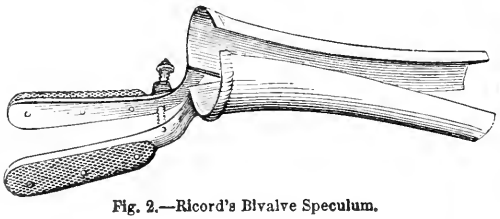

Fig. 2.—Ricord's Bivalve Speculum.

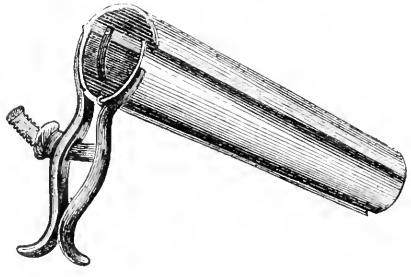

Fig. 3.—Ségalas' Three-valved Speculum.

Fig 4.—Plug of the Three-valved Speculum.

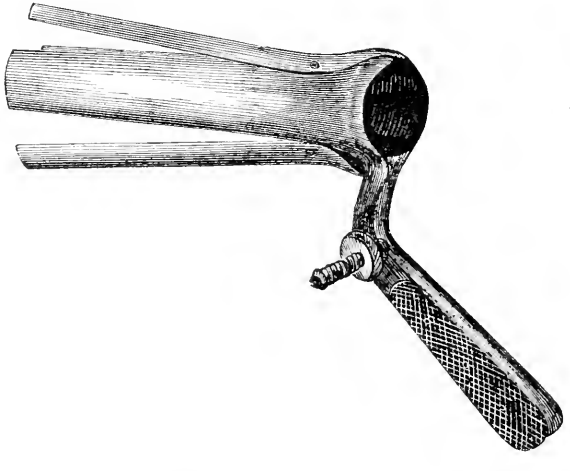

Fig. 5.—Charrière's Four-valved Speculum.

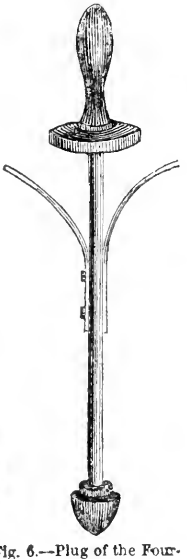

Fig. 6.—Plug of the Four-valved Speculum.

.ess plug to facilitate its entrance. The alteration in shape thus effected materially aids in the illumination of the vagina,

the light being thrown in by the concave surface of the extremities. Over the entire external surface of the blades a thin elastic rubber cone is passed which effectually shields the folds of the vagina from the pinching of the closing blades. A great improvement is made by dispensing with the unwieldy and inconvenient handles, and in substituting for them the screw, which furthermore has the advantage of holding the instrument either opened or closed, as it is placed.]

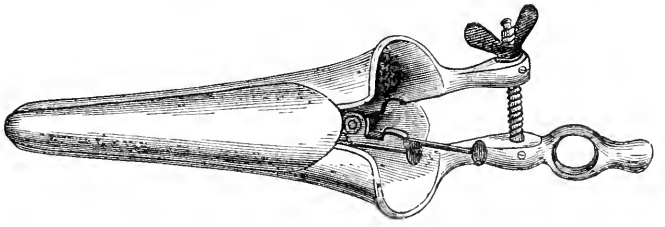

Fig. 7.—Tiemann's Improved Speculum.

We will remark, in passing, that in the case where the actual cautery is necessary, we use instruments of horn, of very great calibre, those of glass not being able to serve for reasons easily understood. Finally, when it is important to embrace in a single *coup d'œil* a large portion of the vaginal walls, we recommend the speculum with many blades which can be separated at the pleasure of the operator.

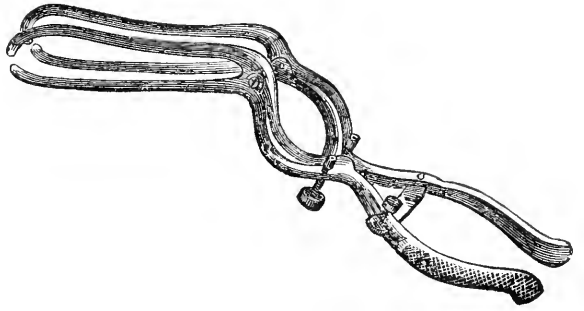

Fig. 8.—Speculum with Four Movable Branches.

To obtain the greatest possible profit from the application of the speculum, a long continued practice in the use of this instrument is absolutely necessary. We think it will not be useless to describe here, in a few words, the method which seems to us the most surely conducive to this result.

After having placed the woman upon a horizontal plane, with the pelvic region slightly elevated, the operator commences by completely exposing the vulva by turning aside the labia majora with the index finger and thumb of one hand; then he places the extremity of his well-oiled instrument, furnished with its plug, at the posterior commissure of the labia minora, and then passes it with light rotatory movements into the vagina, while holding the extremity of it directed nearly against the middle of the hollow of the sacrum. With those women the entrance of whose vulva is small, at the height of the constrictor vaginæ an obstacle is met with, which is due to contraction of this muscle. In order to save the patient from a somewhat severe pain, it is necessary that we should not brusquely force through this obstacle, but slowly surmount it by rotatory movements executed with every possible precaution. These are not to be interrupted until the hand perceives the resistance, which the fundus of the vagina opposes to the advance of the instrument, and which a little practice will make easily recognizable.

As soon as the end of the speculum has passed the constrictor muscle, the plug may be withdrawn, in such a manner that at the same time the instrument is pushed further forward, knowledge may be attained of the condition of the walls of the vagina, which by degrees become accessible to view. However, when the exploration is not to be followed by the application of medicaments, this examination can equally well be made in withdrawing the speculum.

In the normal state, it is not difficult to bring the vaginal portion of the neck into the uterine opening of the speculum. When it does not get there of itself, effort is to be made to bring it there by repeatedly rotating the instrument, by partially withdrawing it and thrusting it in anew. The task is not so easy when from some cause the neck has deviated forward or backward or to the right or left. One is sometimes obliged in these cases to withdraw the instrument almost its whole length, and to renew the attempts; or it may be necessary to direct its extremity forcibly to one or the other side, until the neck is found. There are indeed cases where it is completely impossible while the woman lies upon her back. We are

obliged, then, to make her take a quadrupedal position (upon her elbows and knees).

In cases like this, to facilitate the examination with the speculum, the touch is to be first instituted in order to determine beforehand the direction which is to be given to the instrument.

[It is impossible, in this connection, to pass by the speculum of Dr. Sims, for by its means not only a positive case of vesico-vaginal and other fistulas may be predicated with certainty—a service of which due mention will be made in future pages, when this subject is specially treated of—but we may be enabled to bring the os into view, when by retroversion, or the presence of tumors, etc., it is so removed from its normal position as to be out of view by any ordinary speculum.

The instrument may very properly be styled a levator perinei, which name will also give a clue to its manner of use. The patient is placed upon her hands and knees, crouched down as low as possible, with the belly allowed to hang passively, without being held up by any effort, and one of the extremities of the levator—that of most appropriate size being chosen—is inserted in the vulva, and then by gentle force the perineum is raised so that the whole cavity of the vagina is displayed in a manner unequalled by any other instrument. The disadvantage of this instrument is that one person has to maintain it when thus placed, so that if any operation is performed an assistant is required. Besides, the position of the patient is found to be very repulsive to most. Certain it is, however, that the instrument is most valuable, and does much to facilitate the treatment of uterine diseases.

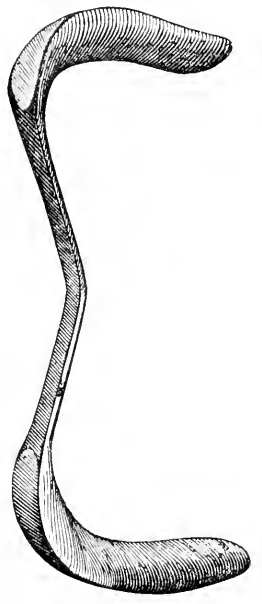

Fig. 9.—Sims' Speculum.

A less effectual method is to place the patient as nearly as possible lying upon her breast and stomach, the left arm being thrown behind and the chest rotated forward, so that the sternum is quite in contact with the table or bed. The feet being then

drawn up, one extremity of the instrument is inserted into the vulva, and the perineum raised, allowing the pressure of the atmosphere to dilate the vagina, thus giving a full view of the vaginal cavity.]

The vaginal portion of the neck appears, in a sound state, in the form of a conical protuberance, filling more or less completely the uterine opening of the speculum. It is distinguished from the walls of the vagina by its perfectly smooth surface, by its paler color, roseate or slightly yellowed, finally by the orifice which it presents, and which, in women who have never conceived, has the form of a round or transversely oval opening, while in those women who have already had children, the transversal diameter of the opening is longer, and its borders of a higher color. Often there is remarked upon them little rents or linear, shining cicatrices. Moreover, we will repeat that in the normal state no flow of mucus is perceived from the orifice; it is only a little before or a little after the epoch of menstruation that at the most a tiny drop of a clear and transparent liquid is seen. A more considerable flux will always justify the well grounded suspicion of a hypersecretion of uterine mucus, which, by the way, is almost constant with multipara.

After what we have said of the proper character of the vaginal portion of the neck in the healthy state, it will not be difficult to recognize a morbid condition. We will reserve a detailed description of the pathological changes which we can recognize by means of the speculum, until we consider the treatment of uterine diseases in particular.

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Art. IV.—Exploration with the aid of the Uterine Sound.

The introduction of catheters, bougies or true sounds into the cavity of the womb has been for a long time proposed for the diagnosis of certain pathological conditions of the organ and its appendages. But it is chiefly through the labors of Simpson and Kiwisch that this method of exploration has, in these later days, met with a more general acceptance in practice.

We would be far from denying to the sound all claims of utility for certain diagnostic or therapeutic purposes. Still a long use of this instrument, continued during several years, has convinced us that the advantages which it promised in its principle, are not so numerous or so great as one might be led to suppose. If, in our days, some practitioners suppose that exploration by the sound is indispensable for the certain diagnosis of the greater proportion of uterine diseases, we are convinced that this modern opinion will, for good reasons, be soon renounced for more true ideas on this subject.

In the first place, the use of the uterine sound is by no means so harmless as has been asserted. One may have all the familiarity and dexterity possible in the management of this instrument; but that will not at all prevent, that, in certain cases, its introduction into the cavity of the womb will be met with great difficulties, and will cause irritations more or less serious, and lesions of the mucous membrane. A good number of cases are known where the uterine sound, even in the hands of the most skillful and most celebrated practitioners, has excited abortions, caused violent uterine colics, and even metritis and peritonitis, seriously compromising the life of the patients. In consequence, even were the sound capable of giving the most important knowledge, in a diagnostic point of view, the physician would be bound to use the greatest prudence in its employment. How much the more now that we are convinced that its utility is at least very secondary! For it is undoubted, that the employment of this instrument will very rarely assist to establish the diagnosis of diseases which other modes of exploration cannot enable us to determine.

In treating of the diseases of the womb, ovaries, etc., we shall

discuss in detail the conditions in which catheterism of the uterus can be useful. We will here content ourselves with showing the way in which the sound should be used. But we will again repeat that its use should be very restricted, and reserved only for those cases where other methods of exploration have failed, and where catheterism alone can enable us to make a precise diagnosis.

Fig. 10.—Kiwisch's Uterine Sound.

The instrument of Kiwisch is composed of a metallic staff, some 11 or 12 inches in length, slightly bent, fixed into a handle, and terminating at its extremity by a button of the size of a small pea. The bend commences about 2 to $2\frac{1}{2}$ inches from the extremity, and corresponds with that of the axis of the pelvis. Toward its inferior part the sound is thicker. At $2\frac{1}{4}$ inches below the button, upon the convex side of the sound, a little eminence is placed which shows the distance which it can pass into the healthy uterus. Above and below, a scale of centimètres allow, in any given case, an exact recognition of the depth to which the instrument goes.

A second instrument equally commendable is that of Valleix. The capability of being lengthened or shortened at pleasure renders it especially useful for general practice.

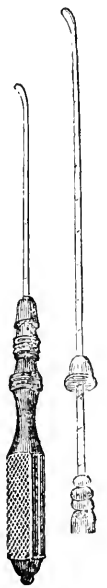

Fig. 11.—Valleix's Uterine Sound.

The solidity and inflexibility of these metallic instruments renders their introduction often very difficult in cases of displacement or inflexion of the womb, or where a **neoplasm** (fibroid, polypous, etc.) obstructs its cavity. If the resistance offered is attempted to be overcome by force, grave consequences may follow. Hence, in cases of this kind we employ elastic sounds of medium size, strengthened by a stylet, to which the curve required by the position of the uterus can be easily given. [The sound usually employed in this country is

Simpson's, which differs not materially from that of Kiwisch. To which of these gentlemen the credit of originality is due, we do not pretend to decide, although we have always been led to suppose that the great Scotchman was the inventor. We have long been in the habit of using metallic sounds made of flexible metal, as of pure copper, which may or may not be silvered, and admit of frequent bending in any direction, in those cases where from flexions or any abnormality, the ordinary sound cannot be easily passed. We have found, in using flexible bougies and catheters with or without a stylet, that we have been deceived in their supposed advance, and that in reality they did but bend upon themselves, sometimes the point reappearing at the external os, and frequently the catheter being found doubled upon itself, and seriously flexed or broken when withdrawn. A costly and complicated instrument is Sanger's sound, which has no special utility for diagnosis, but may be of some value in restoring the abnormal positions.]

This is the manner of introducing the uterine sound. The position of the patient is the same as that employed for exploration by the speculum. The index finger of one hand is introduced into the vagina in such a manner that its extremity touches with its palmar surface the neck of the uterus. While it is there maintained upon the posterior lip of the orifice, the sound is passed in with its concavity upward, just to the entrance of the neck, taking care that it remains ever in contact with the pulp of the conducting finger. When the orifice is a little open the point of the instrument easily penetrates into the inferior part of the cavity of the neck. However, even with virgins, its introduction between the lips of the neck by a hand somewhat accustomed is without severe difficulty. As soon as it is evident that the first part of the operation has been effected, we next try with precaution to advance the end of the sound. It is always necessary to act with management, to withdraw at the least resistance, gently to raise or lower the instrument to make its extremity penetrate into the cavity of the body of the organ. The transversal folds of the mucous membrane and the narrowness of the canal at the extremity of the internal orifice, offer a certain resistance at this step of the operation. But as soon as the tip of the sound has passed

this last point, nothing averts its progress to the fundus of the organ. It is perceived that the sound touches the fundus of the uterus on one hand by noting that it has penetrated up to the prominence which is placed upon its convexity; on the other hand, by forcibly pressing down the handle, the point of the instrument becomes more and more distinct to the touch, through the abdominal walls. To notice the last phenomenon, it is necessary that the uterus should be sufficiently movable to be able to be raised above the symphysis pubis. It is also necessary that the abdominal walls should possess a sufficient degree of tenacity and suppleness.

The introduction of the sound into the healthy womb is as easy as it is often difficult in certain diseases of this organ. These are especially flexions, ante and retroversions, also neoplasms bulging into its cavity, which offer the great obstacles to catheterism, and which even render it entirely impracticable for the physician who does not wish, by employing force, to expose his patient to violent pains, or even to great dangers.

We will not attempt to describe the different manœuvres which can be employed to overcome such obstacles, for we are convinced that it is not possible here to establish general rules. It is only the experience of a long practice which can, in a given case, direct the choice of the most proper procedure.

We will describe, with more details, the information furnished for the diagnosis by the use of the sound, in treating of the special pathology of the maladies of the uterus and ovaries. At present we will only mention that this instrument is used to discover the permeability of the canal of the neck or of the cavity of the body of the womb, the degree of mobility of this organ, the adhesions which may have been contracted with the neighboring organs, as well as to appreciate the length and the size of the cavity, or the thickness and sensibility of the walls. Finally, uterine catheterism may aid in establishing a diagnosis of certain faults of conformation, acquired as well as congenital.

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Art. V.—Dilatation of the Cavity of the Neck by the aid of Prepared Sponge as a means of Diagnosis.

The introduction of a cone of prepared sponge into the interior of the neck is an operation which was first used by Simpson in the treatment of the diseases of females, to discover certain foreign bodies in the cavity of the uterus, such as little polypi or round fibrous tumors. We have employed this procedure many times, and we are convinced that in reality it can render valuable services.

In a few words, this is the method of its application. A metal staff, fixed in a handle, of the length of nearly 10 to 11 inches, and bent at an obtuse angle at $1\frac{1}{2}$ inches from its extremity is thrust into a cone of prepared sponge 2 inches long. After having previously introduced the index finger into the vagina, the instrument is glided upon the pulp of the finger, the sponge is engaged in the orifice and then it is gently pushed into the neck. This swells little by little, and dilates the neck. At the end of twenty-four hours the sponge is withdrawn, and a second one, larger, is introduced, until the dilatation of the canal shall be sufficiently considerable to admit the introduction of the index into the cavity of the body. The presence and nature of a foreign body can then be directly recognized by the touch.

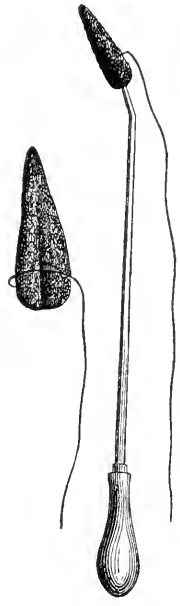

Fig. 12.—Instrument for the introduction of prepared sponge into the cavity of the cervix.

This procedure, at present little practised in Germany, is of great value for the diagnosis of certain maladies of the uterus. We shall frequently have occasion to return to it in the following pages.

[Tents have been recommended made of other materials than sponge. One, of the bark of the elm, by Dr. Storer of Boston, is

said to have some advantages over that of sponge, inasmuch as it expands more regularly and becomes fetid less quickly.]

Bibliography.—Simpson, On the Detection and Treatment of Intra-uterine Polypi. Montbl. Journ., Jan., 1850.—Scanzoni, Beitræge zur Geburtsk., etc Bd. II.

CHAPTER III.

General Remarks on the Treatment of Uterine Diseases.

The progress which our age has made in the diseases of women has compelled us to recognize the small utility of the almost exclusive employment of the internal medicines prescribed by the old authors for the treatment of uterine diseases. Physicians are themselves convinced that it was necessary to have recourse to a mode of treatment which permitted them to act directly on the affected organ.

Perhaps in our day we have fallen into the opposite extreme. The internal means have been neglected, among which surely some very useful ones may be found, and we give no thought to any but the topical treatment. However, the abuses which have been latterly committed, have not been able to diminish its value, and one of the first duties of a physician who occupies himself with the diseases of women is to familiarize himself with a mode of treatment indispensable in practice.

To avoid useless repetitions in the chapters where we shall treat of the cure of each particular malady, we will here, once for all, give a general description of the topical means most employed in the affections of the uterus and the surrounding organs.

Art. 1st.—Of Sanguineous Emissions.

The principal means which were formerly adopted in the treatment of phlegmasia and hyperæmia of the womb were general bleedings, or indeed, more often still, the application of leeches to the vulva, the anus or the internal surface of the thighs. In our day we have noticed that, while the patients are made to lose much less blood, the same end may be attained in a much surer manner by drawing the blood directly from the organ affected. This sanguineous emission can be effected by two

methods; by the application of leeches to the vaginal portion of the neck, or indeed by the scarification of this part by means of instruments especially constructed for this purpose.

In all cases where it is desirable to produce a complete and durable depletion of the organ, leeches should be preferred to scarifications. They should be applied in the following manner. A solid cylindrical speculum, Fergusson's, for instance, is to be introduced into the vagina. The neck, exposed, is to be carefully cleaned of any mucus which adheres to it, by means of a a pledget of lint. After having introduced into the speculum the desired number of leeches (six or eight are almost always sufficient) they are to be pushed up to the neck by a second pledget of lint. If they are greedy and the vaginal part is carefully cleaned, they will have bitten after a few moments. The patient feels little or no pain. At the end of ten minutes the leeches fall one after another, and withdraw themselves along the speculum to its mouth, from whence the physician removes them.

The longer or shorter duration of the bleeding, after the leeches have fallen off, depends upon the degree of engorgement of the organ, the texture of the neck, and also more or less upon the depth of the bites. Yet we never remember a case where this has continued more than twenty-four hours, supposing, however, that the leeches have really bitten the neck and not the walls of the vagina. Oftener, however, at the end of from two to four hours the oozing of blood has completely ceased. If it is desirable, however, to encourage the flow, after the fall of the leeches, we can make an injection of tepid water or order a hip bath.

When one undertakes this little operation, it is very necessary that the leeches should bite the neck and not elsewhere. This is why we prefer to apply them ourselves, and not, as some advise, intrust it to a nurse. For it may easily happen that the neck is not inserted in the opening of the speculum, and the leeches attach themselves to some other point in the vagina. This mistake not only causes the failure of the end proposed, but it may happen that a very considerable vessel, situated in the vaginal walls, may be attacked, so as to induce a hæmorrhage, which will be with difficulty arrested. We have ourselves seen such

an accident in a case where the application had been intrusted to a sage-femme.

[We would especially advise that the leeches should be counted after they have all fallen off, to see that they correspond with the number applied, as instances have occurred where they have entered the cavity of the uterus, causing so much disturbance that metritis was supposed to have supervened ; nor was this novel tenant expelled until the gradual dilatation of the os and cervix had been effected, after some days' suffering, with pains and other symptoms resembling those of an abortion.]

Fig. 13. Scarificator for the neck.

Scarifications will not be preferred to the mode of bleeding which we have just described, except in those cases where the nature of the malady does not require an abundant loss of blood, or where the patients cannot procure leeches. We employ for scarification a long-handled instrument, convex upon its cutting surface, which is continued to its rounded extremity. The neck is exposed by means of a speculum, which affords the greatest facility for making the incisions with certainty.

[The instrument delineated in the accompanying plate, represents a knife, which is the invention of Dr. Emmet, of New York. It can be turned in various directions by a ball and socket joint, so that the incisions may more easily and effectually be made, in cases where the cervix is either distorted or so bound down by adhesions that it cannot be well exposed by the speculum. Bleedings may also be effected by an instrument

Fig. 14.—Dr. Emmet's Ball and Socket Knife.

called "the mechanical leech," which consists of a small scarificator, with which the incisions may be made in any locality to the precise depth required; and then the blood may be withdrawn by applying to the cuts a small bag of india-rubber from which the air has been exhausted, in the same manner that india-rubber cups are used.]

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Art. II.—Of the Use of Caustics in Uterine Diseases.

Caustic is applied sometimes upon the vaginal portion, and sometimes upon the mucous membrane of the uterine cavity itself, according to the affection to be treated.

1. **For the neck** either liquid or solid caustics are employed, or even the actual cautery. Before the application, the speculum should always be introduced, and the parts exposed which are to be operated on. It is well to employ a cylindrical instrument; for this best protects the walls of the vagina. If it be of glass, like those described above, it will have the further advantage of not being attacked by the acids which enter into the composition of the greater proportion of the caustics.

The **solid caustic** most used is nitrate of silver. The neck being cleaned from the mucosities which adhere to it, the caustic is then introduced by means of a caustic-holder, to the bottom of the vagina, and the diseased part is several times lightly touched therewith.

The neck is sometimes so vulnerable, that with the utmost prudence and care, a hæmorrhage prejudicial to the action of the caustic cannot be prevented. In such cases it is best to use **liquid caustics,** such as a solution of the nitrate of silver, acid nitrate of mercury, tincture of iodine, pyroligneous acid, or a concentrated solution of alum. These are in the most frequent use. Except in the case of nitrate of mercury, which, acting in a very powerful manner, ought always to be applied to the neck on a pledget of lint, the best method of applying liquid

caustics is to pour them into a glass speculum, in such a manner that the surface of the diseased neck be wholly covered. The instrument is left there some minutes, when by depressing its exterior end the liquid is permitted to flow out.

Caustics in powder are more rarely employed, and only in cases where it is desirable to keep up the cauterization during a certain length of time. For this purpose is employed a tampon of carded cotton, upon which thread is wound. This is introduced into the speculum, after the surface to be applied to the neck is coated with the lapis infernalis or with pulverized alum, etc. In this case the cotton is the porte-caustic.

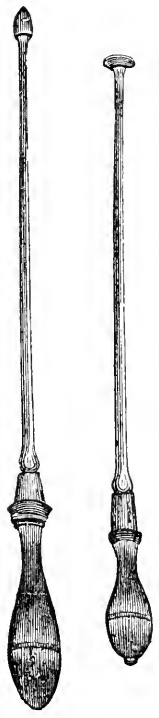

Fig. 15.—Actual cauteries.

The methods of cauterization which we have described are employed particularly in cases of excoriations and superficial ulcerations of the lips of the orifice, such as are encountered in so great a number of the diseases of the womb. The **actual cautery** is only used where we wish to burn a cancerous ulcer or to remove a substance which is large, deep, and obstinately impracticable to all other caustics. Speculums of horn and of large size are here the most suitable. Those made of metal are too good conductors of heat, and transmit it uselessly to the vaginal walls, while those of glass are unsafe, as they are easily broken by heat. When the cauterization is designed not to penetrate deeply, but to spread superficially over the surface, a rod of metal, terminated by a flat disk of about half an inch in diameter, is used. If in cases of cancer it is necessary to penetrate into a cavity, the cervical or olive-pointed cautery is used.

The pain which accompanies the application of the actual cautery to the neck of the womb is nothing, or next to nothing. However, as the very idea of this operation terrifies most patients, it is well not to communicate it to them. The pretext of some little operation should be made, and the iron need not be brought in until, by the inhalation of chloroform, the

patients are completely narcotized. When they have returned to themselves, and are persuaded of the harmlessness of the treatment, they may be informed of what has passed. We may, however, add that we have employed the actual cautery several times—the patient, who each time was chloroformized, never suspecting the fact.

We ought here to draw the attention of our readers to a procedure which we have lately employed with entire success in the treatment of obstinate ulcers. We mean the cauteriza-

Fig 16.—Porte-caustic.

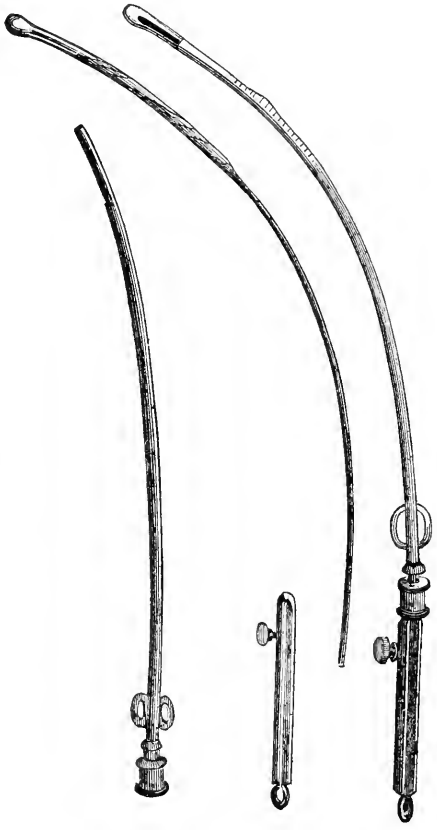

Fig. 17.—Porte-caustic of Lallemand.

tion of their surface with Spanish sealing-wax. A light being placed between the limbs of the patient, and the neck being

displayed by means of the horn speculum, the end of a cylindrical stick of the sealing-wax is melted in the candle and applied immediately upon the diseased part. This method is less dreaded than the actual cautery, and still determines a cauterization much deeper and more intense than is produced by pharmaceutical preparations.

2. The **cauterization of the mucous membrane of the uterus** extends sometimes only to the inferior part of the cavity of the neck, sometimes as far as the mucous membrane of the body itself. In the first case we use a crayon of nitrate of silver, the extremity of which may be left exposed for the space of half an inch. After the introduction of the speculum, the caustic is passed through the orifice into the cavity of the neck, where it is allowed to remain for fifteen to thirty seconds. In introducing and withdrawing the stick, care should be taken not to break it. If this mode of treatment is followed by a too considerable hæmorrhage, a painters' brush may be used, dipped into a concentrated solution of nitrate of silver (2 parts in 4 of water), which may be carefully introduced into the orifice. When it is wished to produce a more intense action, the operation must be repeated three or four times in succession.

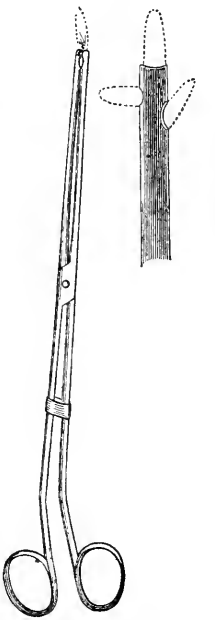

Fig. 18.—Gardner's porte-caustic and uterine dressing forceps.

For the application of solid caustics to the mucous membrane of the body of the uterus, we employ porte-caustics specially contrived for the purpose. The instrument we ordinarily use is composed of a canula of silver, exactly like that of a uterine sound, terminating at its extremity by three springing branches, which can be closed by means of a movable ring. The nitrate is held in the space circumscribed by these branches. When the extremity of the instrument penetrates the cavity of the uterus, the caustic is partly dissolved by the mucosities which bathe it, and in this manner the mucous membrane is cauterized.

[The adjoining cut will show an instrument devised by us to

facilitate cauterizations of the uterus. It is a light, small elastic forceps, the jaw of which is especially adapted for holding caustic either parallel, perpendicularly, or obliquely to the handle of the instrument. Over the handle slides a ring of elastic india-rubber, which acts as an ever-ready spring, and is capable of being removed, increased, or diminished at pleasure. This instrument will be found exceedingly convenient for use as a dressing forceps, to cleanse diseased surfaces from mucosities with a bit of lint or cotton, prior to any topical application of caustics or astringents.]

Fig. 19.—Gardner's intra-uterine porte-caustic.

We prefer this instrument to the urethral porte-caustic of Lallemand, which Kiwisch recommends for the uterus. Its great size often renders its introduction difficult, and the sharp edges of the piston, after the canula is withdrawn, might easily injure the mucous membrane and induce a hæmorrhage, so as completely to annul the effects of the cauterization.

[In order to pass solid caustic more freely into the uterine cavity, and without any danger of its breaking and leaving its fragments within, we have caused an instrument to be made by Mr. Tiemann, consisting of three springing blades of steel, galvanized with gold, cone-shaped, and closing at the extremity, so as to enable the solid stick to be freely passed, when the cauterization is effected by the sides of the stick in the os, or in any fistulous ulcers.]

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Another method for the application of caustics to the intra-

uterine mucous membrane consists in making injections of medicaments held in solution, as, for example, the nitrate of silver, the perchloride of iron, and the tincture of iodine, diluted with water. To this proceeding the objection has been made that it is not without danger. It has been feared that a part of the liquid injected might penetrate into the cavity of the peritoneum by the Fallopian tubes, and thus give rise to a more or less intense peritonitis. Although we have no intention of formally denying the possibility of this accident, we can, however, assert that in the numerous cases where we have adopted this mode of application, nothing like this has occurred. We have observed, it is true, that the injections were followed by violent pains in the regions of the womb and the sacrum; but they had either the character of uterine colics, and were due to the presence of liquid in the cavity of the uterus, or else they had for their cause an acute metritis, communicated from the mucous membrane to the parenchyma of the organ, and occasioned by the shock of a too powerful caustic.

But accidents of this character have disappeared since we adopted the rule not to make injections, save when the cavity of the neck and orifice were sufficiently large to allow the rapid flowing out of the liquid. At the most, the quantity of this should not surpass ʒj. to ʒij. We use small glass syringes [those lately made of hard india-rubber are far better,] the long and narrow neck of which is bent like the uterine sound. It ought to be pushed up to the fundus of the organ in order that the jet of liquid gently thrown out should strike there and return along the walls of the cavity toward the exterior orifice.

As to the choice of liquids, we advise that the sensibility of the uterus should be first tried by an injection of tepid water. If the patient supports this well, a diluted caustic solution may then be tried. It is only by degrees that the solution can, little by little, be concentrated. We have also observed that the uterine colics which are sometimes so troublesome, appear less frequently when the liquid is slightly warmed before being used. Unfortunately this cannot be done in those cases where the injections are used for the purpose of overcoming the disposition of the womb to hæmorrhage.

[Formerly we were accustomed to throw fluid injections into

the cavity of the womb by means of a silver syringe, as described in our "Causes and Curative Treatment of Sterility," but the metritis or uterine colic which followed so frequently, accompanied by such serious symptoms, sometimes apparently threatening the life of the patient, made us gladly seize upon a substitute possessing all the advantages without any of the inconveniences and dangers of the former. This we found in the use of ointments, which by means of a canula and piston were pushed into the cavity of the womb. The operation is very simple. The entire instrument is about a foot in length, consisting of a hollow tube of German silver or hard rubber, to which is fitted a piston. Withdrawing the piston, the tube is loaded with as much ointment as may be desired by plunging the extremity forcibly into it. The piston is then inserted up to the ointment. Guiding the instrument thus loaded by the index finger, it is passed through the os uteri into the cavity of the womb. By pressing on the piston the ointment is left in the womb, causing little, if any, disturbance, local or general. We append two formulæ for ointment to be thus used:

Fig. 20.—Intra-uterine ointment syringe.

℞ Argent. nitratis,	ʒij.	℞ Plumbi acet.,	ʒij.
Ext. belladon.,	ʒj.	Morph. sulph.,	grs. iv.
Ung. spermacet.,	℥ij.	Butr. cacao,	ʒss.
		Ol. olivæ,	q. s.]

Bibliography.—Hardy, De l'emploi des caustiques dans le traitement des affections du col et de l'utérus. Thèse. Paris, 1838.—Filhos, Considér. pratiq. sur les affect. du col de la matrice. Rev. méd. chir., 1847. Nov.—Chomel, Ann. de thér. 1846. April.—Pichard, Des ulcérations et des ulcères du col, etc. Thèse. Paris, 1848.—Robert, Des affect. granuleuses, ulcéreuses et carcinomateuses du col, etc. Thèse. Paris, 1848.—Chassaignac, Bull. de thér. 1848. Dec.—Forget, Etud. prat. du col de la matrice. Paris, 1849.—Simpson, Inflamm. Eruptions upon the Mucous Membrane of the Cervix Uteri. Monthly Journ. April, 1850, p. 386.

Art. III.—On the Application of Various Ointments in Uterine Diseases.

In the course of the treatment of the diseases which now occupy our attention, it is often necessary to have recourse to the application of medicaments in the form of ointments. This is the manner in which they are used.

The speculum is introduced into the vagina, and then a long piece of sponge, first smeared on one of its sides with the ointment which is to be used, is introduced into it The sponge is then pushed up to the neck, where it is retained by means of a forceps until the speculum is withdrawn with the other hand. In order to remove the sponge more easily, it is well to pass a thread through its lower part, which may hang out of the vulva.

Another method of applying the ointments, is to mix the constituent medicaments with a certain quantity of lard and wax so as to form them into a ball, which is introduced into the vagina with the index finger. These balls are called **medicated pessaries.*** Their weight does not generally exceed two to three drachms. With the lard is mixed about a fifth of its weight of wax, in order to give to the ball more consistency; still it ought not to be too hard, or the mucus of the vagina and uterus will not completely dissolve it. Hence if the *mélange* for any reason possesses considerable consistency, it is well to inclose the ball in a piece of tulle or other large meshed stuff. It can be made into a little bag, the ends of which may hang externally so that it can be extracted at pleasure.

Another method which appears to us less convenient than the two preceding, is to give very little consistency to the ointment and to spread it upon the diseased neck by means of a brush. This procedure imperfectly answers the desired end simply because the patient cannot make the application herself, which however is very desirable when the physician cannot visit her daily.

The substances which are applied in the form of ointment are very diverse. Most frequently they are the narcotics,

* Simpson, *Medicated Pessaries*, *Monthly Journal*, *June*, 1848, *p.* 886.

opium, belladonna, or certain astringents, such as alum, tannin, the sulphate of zinc, the acetate of lead. Some resolvents have likewise been used, as for instance, iodine, the iodides of potassium and lead, mercurial ointment, etc. It must, however, be remembered that in those cases where it is desirable to produce a prompt effect, this procedure, in general, ought not to be employed; for the absorption of medicaments by the walls of the vagina is extremely slow and uncertain. We have also noticed that this mode of treatment is not applicable in those cases where we seek to overcome very violent pain by narcotics. Administered in the form of lavements, these medicaments have a much more prompt and sure operation than when applied directly upon the mucous membrane of the diseased organ.

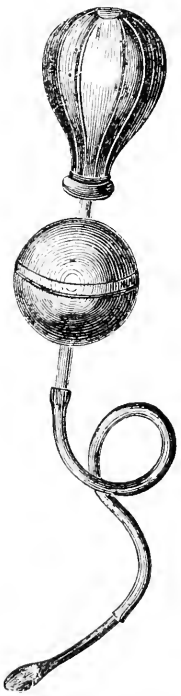

Fig. 21.—Instrument for the local application of the vapor of chloroform.

Art. IV.—On the Topical Application of the Vapors of Chloroform.

The direct introduction of the vapor of chloroform into the vagina has been recently proposed for the violent paroxysms of pain which accompany certain uterine diseases. We have several times tried this method, and by the good results obtained we have recognized its efficacy. We give here a representation of the apparatus we have had constructed for this purpose. It is composed of a bladder of vulcanized india-rubber, mounted with a pipe of wood, which is fitted with a screw to one of the poles of a hollow brass globe. This globe is about two inches in diameter, and can be separated into halves. The opposite pole is also pierced with an opening furnished with a tube of the same metal, to which is fitted another tube about twenty inches long, made of vulcanized india-rubber, and terminated by a ring in which is screwed a uterine canula. The ring and canula are of horn.

To work this little apparatus, we have but to put into the brass globe a little cotton, moistened with chloroform, and then introduce the canula as high as possible into the vagina. By compression upon the bladder, the air it contains is made to pass into the globe where it becomes saturated with the chloroform vapor, which is then carried with it up to the neck of the uterus.

It is principally in uterine colics, which are such distressing symptoms of uterine diseases, that we have appreciated the good effects of this application; and the expedient is too novel for us to venture as yet to hazard a definite judgment. Perhaps equally good effects may be obtained in pains of another character. We are rarely obliged to work this apparatus more than ten consecutive minutes, this time sufficing to moderate the sufferings or to calm them entirely. Sometimes applications per vaginam are made without any result. In such cases we have obtained a prompt success by introducing the vapor of chloroform by the anus into the rectum.

[**Acupuncture** has latterly been recommended for uterine pains; strong solutions of morphia and other narcotics being thrown by means of a small, sharp-pointed syringe into the parenchyma of the neck or body of the uterus. We have no experience of its utility. The puncture and injections are also recommended to be made externally over the sacrum or lower dorsal vertebræ.]

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Art. V.—On Tamponing the Vagina.

The objects for which tamponing of the vagina is proposed are various. In gynecological practice it is usually for the purpose of keeping the vaginal walls separated, and for absorbing any matters too copiously secreted by it or by the uterus. The prolonged contact of this decomposing matter with the mucous membrane of the vagina may, especially when it is of a puriform nature, cause inflammation, which

will of itself produce a still further augmentation of the hypersecretion. It may also, in flowing from the vulva, become the cause of erythemas or of excoriations of the labia and the inner surfaces of the thighs. In such cases the tampon is obviously of use. It imbibes the secreted liquid and prevents its injurious action on the neighboring parts. For this end, the tamponing is effected by means of a piece of wadding rolled several times upon itself, so as to form a cylinder 4 inches long and $1\frac{1}{3}$ inches thick. Around the whole surface of the roll a thread is then wound, the ends of which hang from one of its extremities.

This cotton tampon is introduced most easily by means of a speculum, which is slowly withdrawn, while with a forceps the tampon is held in the vagina, in order that it may not be dragged out. On the removal of the speculum, the two ends of the thread ought alone to be visible externally.

The tamponing, which has no other use, except to hold the vaginal walls apart and to absorb the mucus, is sometimes insufficient. In such cases the topical application of solids or liquids, principally astringents or caustics, is added. We have shown above, in detail, the manner of employing them.

Finally, the tampon is used as a hæmostatic in hæmorrhages of the vagina or of the womb, which cannot be otherwise arrested. It is true that these cases are oftener met with in the practice of obstetrics than in the class of cases which now occupy our attention. Still, certain fibrous bodies of the womb, the cancerous changes of the neck, the deep ulcerations of the orifice, lesions of the vaginal walls, and many other causes, may determine a hæmorrhage, and furnish thereby sufficient indications for the use of the tampon.

Here the mode of tamponing is different. In our opinion the most simple, and at the same time the most convenient method, is the following: A little linen cylindrical bag is prepared, about 6 inches long by 3 inches wide. This is fitted upon the exterior of a speculum, Charrière's four-valved instrument being here the best. After having smeared the external surface with some greasy substance, the introduction is readily effected by an easy rotating movement given to the speculum. When the bottom of the vagina is reached, gentle

pressure upon the handles of the speculum separates the valves, opens the bag, and at the same time distends the vaginal walls. This done, the bag is filled with little balls of lint, dipped in fresh water or in some astringent liquor. To press them well down to the bottom of the vagina, a small staff of wood, rounded at one extremity, may be employed. As the sack becomes gradually full, the speculum should be gently withdrawn.

It is proposed at the present time to tampon the vagina with bladders of vulcanized rubber, made *ad hoc*, and mounted with a tube having a stop-cock. They are introduced empty, and by means of a syringe are afterward filled with air or cold water. After repeated trials, our opinion is that this mode of tamponing is very far less sure than that which we have just described. Besides, it does not give the practitioner the important advantage of being able to act directly upon the parts with an astringent liquid. Hence we do not hesitate to give the preference to the tampon of lint.

Art. VI.—On Intra-vaginal Injections.

Vaginal injections play an important part in the treatment of the diseases of the female sexual organs.

According to the effects we desire to produce, they are prepared, either with ordinary syringes, or by means of special apparatus. The liquid to be injected varies equally. Sometimes it is pure water, sometimes medicinal substances are mixed with it. The temperature, also, of the injection is by no means to be regarded as an unimportant point.

In selecting the particular kind of apparatus to be employed, the principal consideration that should guide the physician in his choice, is to determine whether the liquid ought to be thrown in with a continuous or an interrupted jet, and whether it ought to penetrate with force or to act but feebly.

For cases in which it is desired to obtain a continuous stream of little force, as where we wish simply to cleanse the vagina, or to apply certain medicaments to the womb and the neighboring parts, we cannot too highly recommend the following

apparatus, the practical utility of which we have frequently proved.

It is composed of a hollow hemisphere of lead, the pole of which is pierced with an aperture to which is fitted an elastic tube about a yard long and terminating in a tip of horn. This belt is fringed with little notches on its inferior border and is plunged into the basin containthe liquid to be injected. The patient sitting upon a chair before the table on which the basin rests, adapts to the extremity of the tube the little tip *e* by which she starts the apparatus as a siphon. When the liquid drawn up begins to flow, she exchanges the bit *e* for the uterine canula *d*, which she introduces into the vagina. Although it is a fact familiarly known to every person acquainted with the laws governing the flow of liquids through the siphon, that the extremity of the great branch should be placed, at the moment of sucking, lower than the entering orifice, still we ought not to neglect to draw the attention of the patient to this circumstance.

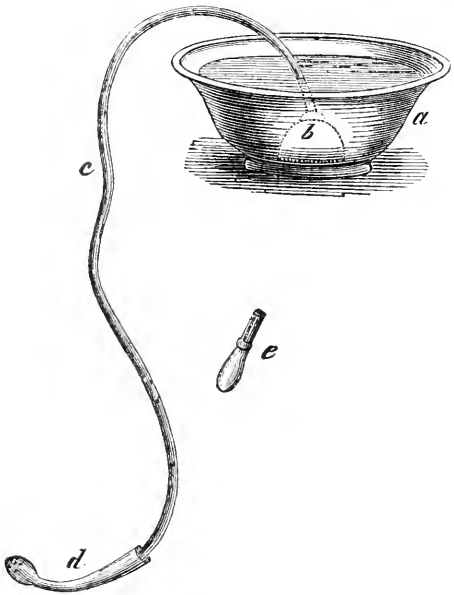

Fig. 22.—Injection instrument of Scanzoni.—*a*, bowl containing the liquid to be injected; *b*, a hemisphere of lead; *c*, elastic tube; *d*, bent uterine canula; *e*, mouth-piece for suction.

This little apparatus, which has rendered us the best of services, is of small cost, small in bulk and very portable. It can be employed by the patient without the necessity of having recourse to an assistant. As its great simplicity renders it little subject to derangement, those frequent expenses are unnecessary which more complicated contrivances require, especially when employed by unskilled hands. It offers still

further the advantage of rendering the injections more convenient and less fatiguing to the patient than those of ordinary syringes, with which only an interrupted stream is obtained.

All these advantages have led us to employ exclusively this apparatus in every case where the end proposed did not demand a great amount of force. It is only for those patients with whom a mechanical irritation of the organ seems to be necessary that we employ complicated machines giving a more forcible *jet d'eau.*

Among these last, the following apparatus seems to us to merit the preference. It is composed of a tolerably resisting leather sack capable of holding 10½ pints of liquid. Its inferior extremity is in communication with an elastic tube furnished with a stop-cock. This acts as a sort of basin, and being fixed by a cord or by leather straps to the ceiling of the chamber or to a hook driven into the wall, it is filled with the liquid to be injected. The patient, sitting before the apparatus, seizes the inferior extremity of the tube which is mounted with a vaginal pipe, introduces it into the vagina, turns the stop-cock, and allows the liquid to enter. We scarcely need to add that by regulating the height to which the basin is elevated and the calibre of the tube, the force and size of the jet can be modified at pleasure.

Various apparatus of a similar character have been lately made of rubber, but their high price renders their use infrequent. It is the same with those of tin, which have in addition the disadvantage of being inconvenient to move.

In those cases where, for some cause, the apparatus we have just described cannot be used, recourse may be had to **clyster pumps** and **irrigators,** with which every one is acquainted. Injection instruments have also been constructed in the form of a miniature fire engine with an air-chest. These give a jet possessed of great force, and for this reason they are employed more frequently in the practice of midwifery than in the diseases which now occupy our attention.

[The instrument represented in the annexed cut and called the Essex Co. Syringe, is far better than any of the antiquated instruments which have been superseded by the inventions in

india-rubber. This instrument has the advantage of most similar instruments of producing a continuous flow, the force of which may be regulated at will. It is portable, compact, cleanly, and efficient. It is manufactured in Newport, R. I.]

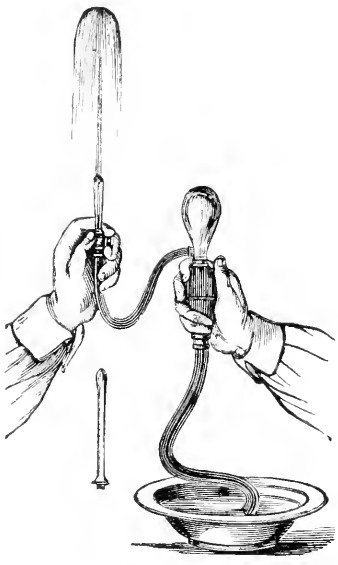

Fig. 23.—Continuous jet syringe.

As we have already said, the liquid which we inject is sometimes pure water, and sometimes various medical solutions or decoctions. Here the astringents are often used, as for example, the perchloride of iron, alum, oak-bark, rhatany, etc. Certain mineral waters as well as some natural and artificial marine-waters, are also employed in this manner.

All these liquids may be employed warm or cold; however, we do not advise any one to commence the treatment with injections of too low a temperature. Patients not habituated to them are often seized afterward with violent uterine colic, diarrhœa, and rheumatic pains. Hence, it is best to first employ tepid liquids. Every successive three or four days the temperature may be lowered, so that thus, insensibly, the patient may be brought to bear the injection cold. Experience has led us invariably to observe this precautionary measure, except in cases where the presence of hæmorrhage would cause the employment of heat to be attended with danger.

An enumeration of all the diseases which require the use of intra-vaginal injections would carry us too far from our present object. We shall give the specific indications in the subsequent chapters. Still, we think it useful to state briefly in this place, the general action of injections, and the modifications of this action, contingent on the use of the different procedures previously mentioned.

As a general rule, the higher the temperature of the injection is raised, the more considerable becomes the flux of blood, which is determined toward the genital organs. This hyperæmia is often very sensible. When the finger is introduced into the vagina it easily perceives an increase of heat, a turgescence of the walls, a superabundance of the secretions, and, when the use of the remedy has been often repeated, a softening and tumefaction of that part of the womb which is accessible to the touch. The patient complains of a disagreeable sensation of weight, heat and uneasiness in the pelvis, which often extends to the loins. Sometimes the whole system undergoes a reaction; the pulse is accelerated, the head aches, palpitations supervene, and quite severe febrile symptoms. The irritative action of the douche upon the sexual system spreads, even to the breasts. These organs swell, become the seat of transitory, pricking pains, and the veins and lymphatic glands of the axillæ become engorged. The sanguineous congestion which takes place in all the organs of the pelvis is further evinced by the augmentation of the menstrual discharge which is produced by injections of warm water into the vagina.

Heat is, as we know, a powerful discutient, so that one need not be astonished at the good effects which the warm douche exerts upon certain augmentations in the volume of the uterus, when caused by an exudation into the parenchyma of the organ. The action of cold injections is not so wide-spread. It is limited, so far as an observer can judge, to the parts which come into immediate contact with the cold water. When we make an examination immediately after the use of the douche, the vagina is found narrowed by the contraction of its walls, and the secretion of the mucous membrane is temporarily diminished. If there is any falling of the womb or of the vaginal walls, often for the first half hour after the injection no trace remains of these displacements, or at least they appear to be very considerably diminished. In the case of an enlargement of the womb, caused by chronic stasis conjointly with a relaxation of the parenchyma of the organ, the action of cold is often striking, for we often see the uterus after a little time sensibly diminished in volume.

The force with which the liquid is injected materially modi-

fies the action of the douche. Generally, the congestion excited by warm injections is considerably increased when the liquid is thrown in with force and in an uninterrupted jet. In the same manner, the cold injections may produce results analogous to those obtained by a less violent warm stream. The mechanical irritation of the parts is therefore equivalent to the action of a higher temperature, and for this reason, it is important to use great care when by cold we seek to overcome hyperæmia, or to arrest hæmorrhage.

CHAPTER IV.

Pathology and Therapeutics of the Particular Affections of the Womb.

Art. 1st.—Absence and Malformation of the Womb.

§ 1.—*Absence of the Womb.*

On carefully analyzing the reported cases of entire absence of the womb, we find that almost always some rudiments of this organ still exist, so that authenticated and unquestionable instances of this anomaly are extremely rare. We are the more convinced of this because, in the course of a somewhat extended practice, it has not been possible for us, in a single case, to verify with certainty the complete absence of the uterus. Still, as authors entitled to credit claim to have seen this defect of conformation, and as the descriptions they have left us of anatomical specimens, do not allow any doubt, it is incumbent on us to give here a brief account of what they relate upon this subject.

The absence of the womb scarcely ever exists alone; but is conjoined with malformation of the fallopian tubes, of the uterine ligaments, and of the vagina. These malformations present great varieties, and are of more or less importance. In some cases these organs are entirely absent. The partial or total absence of the vagina and the defect of conformation of the external parts, which also have been sometimes observed, are of great importance in regard to the diagnosis.

The general development of those women in whom complete absence of the womb has been found, does not always present very sensible anomalies. With some individuals, even the sexual instincts do not seem to have been diminished. Still, in all the cases where defects of conformation have been determined by an autopsy—at least, in all those which have come

to our knowledge—the outward sign of ovulation, the menstrual hæmorrhage, has always been absent. Furthermore, it is clear that the gratification of venereal exigencies could not be regular, after what we have said of the anomalies which the conformation of the vagina presents in almost all these cases. If, however, in spite of all these obstacles, coition has been accomplished, there may have been an *error loci*.

Burgraëve reports a case of this kind. A woman, after having several times engaged in the act of copulation, complained of incontinence of urine, an explanation of which was soon discovered by examination of the parts. The urethra, the opening of which was lacerated, presented such a degree of dilatation that the finger could be easily introduced, even into the bladder.—(*Annal. d'Oculist.*, vol. i. liv. xii.) It may also happen, as Kiwisch observed in a single instance, that a vagina, originally contracted, may enlarge and lengthen through frequent coitus.

Still, from the absence of the uterus, it does not necessarily follow that the function of ovulation ceases. For in the ovaries, sanguineous effusions and little cysts have sometimes been discovered, the existence of which was probably due to the functions of these organs.

We do not think it possible to diagnosticate with certainty the complete absence of the uterus. We may suspect it, either where there exist only the rudiments of the vagina and of the external parts, or where none of the symptoms which characterize the retention of the menstrual fluid in the cavity of the womb can be perceived, or, finally, where, after a sound has been introduced into the bladder, the finger in the rectum receives the sensation of the immediate contiguity of these two organs. We repeat, however, that all these phenomena do not absolutely disprove the existence of a rudimentary uterus. On the other hand, it may happen that the menstrual molimen or an effusion of blood between the two laminæ of the broad ligaments, or an ovarian tumor, etc., puts on the appearance of an accumulation of fluid in the womb, or obscures the results of the examination.

It is superfluous to add that the anomaly of the womb to which we have referred, does not demand any medical treatment.

As soon, therefore, as the diagnosis is established with certainty, our art is powerless, and can do nothing except when the defect of conformation occasions, directly or indirectly, symptoms inconvenient or dangerous to the patient.

We will but mention here the disturbances provoked by the phenomena of dysmenorrhœa, by sanguineous accumulations, by inflammatory exudations in the pelvis, and by various alterations which the ovaries may undergo. For the proper treatment of these affections, we will refer the reader to the chapters of this work which are expressly devoted to them.

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§ 2. *Rudimentary Development.*

There exists, as is well known, a period in the life of the fœtus, in which, so to speak, the womb is but indicated by the point of junction of the two ducts of Müller. These ducts converge toward one another, and each of them possesses at its inferior extremity an enlargement known as the **uterine horn.** Later, these two horns form but a single mass; the obtuse angle comprised between them, filling itself up by the uterine substance which is developed and constantly increases in volume. It is thus that, little by little, the body and then the fundus of the womb is formed.

This mode of development perfectly explains to us the various defects of conformation which this organ presents in the adult. Many varieties of it are recognized, according to the more or less advanced stage at which growth has been arrested

1. The lowest degree of these arrests of development is

known under the name of the **double uterus.** The two horns, of which we have just spoken, have continued, and we find two lateral hollow and cylindrical organs, as large as a pea or a bean, and continuous with the Fallopian tubes. The proper tissue of the womb has not been formed ; a layer more or less thick, of cellular tissue, containing some smooth muscular fibres, is the only existing trace of it. This rudimentary organ is in communication with the vagina, which is itself obliterated, either in part or throughout the whole of its length. Most frequently there is nothing but the rudiments of the Fallopian tubes and the round ligaments. Sometimes the anomaly is more marked on one side than on the other.

It may be seen from this description that, between the double uterus and the entire absence of the organ, the difference is not great. Therefore, we think that the first of these conditions has not infrequently passed unperceived, and that numbers of cases of its complete absence, recorded by various authors, ought to be classed in the category of rudimentary formations.

2. Another anomaly of this organ has been called the **unicorn uterus,** where one of the horns only is developed. It forms then a hollow, oblong body, very often a little convex in its external aspect, and bearing some resemblance to the half of a uterus, more or less complete. The other of the two primitive horns exists only in the form of a hollow or solid rudiment, which indeed may have entirely disappeared. In the latter case, according to the learned researches of Rokitansky,* the corresponding tube is always wanting; but at the spot where the abdominal extremity ought to be, the broad ligament of the womb forms a small fimbriated prolongation. The tube is wanting sometimes even in those cases where some rudiment exists of the uterine horn, while it is exceedingly rare for the ovary of the same side to have entirely disappeared.

3. A third anomaly is known by the name of the **bicorned uterus,** where the two primitive uterine horns are developed side by side. The organ is then composed of two separate halves, converging in their inferior portion. After meeting,

* Oesterreich Med. Jahrb. Bd. xvii. 1 Heft.

they unite and form a single cavity. The point of junction may be more or less high. When it is situated very low, the angle of convergence of the two horns is obtuse, while, if the junction has taken place higher, the angle is very acute. The two uterine halves may indeed be placed parallel the one to the other. M. Rokitansky records several cases of this character. One analogous case we have ourselves had an opportunity to observe. The division is indicated exteriorly by nothing further, except by a groove more or less deep.

In the interior, the wall which descends from the point of junction of the two horns, may be continued, even to the external orifice. The two halves are then completely separated. Two cavities then exist throughout its whole length. In other cases this wall is almost entirely absent, so that the fundus only is divided, while the body and the neck are single.

4. When the womb is divided interiorly only by a membranous wall descending more or less low, without the existence externally, upon the fundus of the organ, of any trace of this division, we have the anomaly constituting the **bilocular uterus.** In some rare cases, the wall descends to the external os,* and even into the vagina, dividing the canal into two lateral halves, and extending occasionally to its inferior extremity. Sometimes, on the contrary, this partition exists only in the cavity of the body of the womb, without extending either to the fundus or the neck, and sometimes it is only indicated by a little longitudinal projection situated on the median line of the anterior and posterior walls, and also upon the fundus of the womb.

It may be inferred that between these four principal groups of anomalies, there are an infinite number of intermediate forms, an acquaintance with which is not devoid of practical importance. Thus, it has been observed that those women in whom the uterus is rudimentary, suffer from an obstinate amenorrhœa, against which of course all treatment is powerless. This is less generally the case, when one at least of the uterine horns has acquired a certain development. We have had the opportunity to observe the presence of a unicorn uterus in two women

* This variety is called the **bifid uterus** by some authors.—*A. S.*

whose menstruation had always been regular, and who had been several times confined. Of all the anomalies that we have noted, the double uterus is the only one which is always accompanied by sterility; the others do not entirely exclude the possibility of conception.

For more ample details as to the more or less injurious influence which these different faults of conformation exert upon the course of pregnancy, we refer the reader to our *Traité sur l'art des accouchements* (3d ed., p. 30). We will here only add that the uterus of the unicorn or bicorn variety often gives rise to a fatal accident; that is to say, to the rupture of that portion of the womb containing the fœtus. In more fortunate cases, the gestation is from time to time interrupted by premature contractions, which provoke an abortion.

We think it is very rarely possible in the living subject to recognize with entire certainty the presence of these anomalies. The existence of a rudimentary formation of the two uterine horns may have some probability, when the external genitalia and the vagina are defective; when the menstrual discharge is not only absent, but its attendant symptoms are either not felt, or are only represented at long intervals by some traces of an interior molimen which cannot manifest itself exteriorly; or when finally, the modes of exploration which we have indicated, do not discover between the bladder and the rectum any organ which could be taken for the womb. The diagnosis of the unicorn uterus seems to us impossible. Kiwisch thinks that the use of the sound renders it easy. But how many conflicting interpretations may attach to the single circumstance which decides here, namely, the greater or less inclination to the left or right, which the instrument takes in penetrating the cavity of the organ! The diagnosis of the bicorned and bilocular uterus has fewer serious difficulties to surmount. Still it is not always possible. The physician may suspect one of these anomalies when he recognizes the presence of a wall separating the vagina into two lateral halves. If this wall extends to the uterine orifice, he may with much probability infer that there is this division of the womb. The diagnosis will not, however, be completely certain till the introduction of a uterine sound into each of the two cavities completes the proof that there is

really a membrane between the extremities of the two instruments. The differential diagnosis of these two anomalies can never be otherwise than illusory. We will only remark further, that in the majority of such cases, the malformations of the uterus which we have noted, up to the present time, have not been recognized during the life of the women in whom they existed, and it was only by accident that they were discovered at the autopsy.

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§ 3. *Constrictions and Obliterations of the Womb.*

Pathology, Etiology and Anatomy.—The uterus is frequently the seat of **partial contraction** or complete **obliteration** of structure or **atresia.** These imperfections may be either congenital or acquired, and are, as we shall see, of great practical importance.

Atresia especially may induce results fatal to the health, and even to the life, of the individual. In most cases, such affections are congenital. Generally the obliteration is located at the external orifice, more rarely at a part higher up in the cavity of the neck, or in the neighborhood of the interior orifice. In the two latter cases the atresia is ordinarily of a secondary nature, appearing only at an advanced age, and as the consequence of certain changes in the texture of the womb.

The obliterating material is either cellular tissue, traversed

more or less by muscular fibres, or else it is formed by the mucous membrane of the vaginal part of the neck, which, being unduly extended, obstructs the uterine orifice. In the latter species of obliteration, less resistance is offered to the finger than in the first variety, where the membrane attains sometimes the thickness of a quarter or half an inch or even more.

We have said that atresia of the internal orifice is seldom congenital, but is generally acquired. Most frequently it is found in old women. **Senile atrophy** of the parenchyma of the womb seems to be its principal cause. The obvious reason is, that at a certain age the upper portion of the cervical canal contracts, and thus the uterine walls surrounding the internal orifice are brought nearer together. Adhesions of these parts are also often favored by the numerous erosions and granulations of the mucous membrane of the neck, which are met with in the course of the chronic catarrhs so frequent at this period of life. Such adhesions become still more likely when the abnormally developed folds which cover the mucous membrane jut out beyond the level of its surface, in such a manner that their tops, always in contact, end in becoming united. It is these same circumstances—namely, the hypertrophy of the folds, the formation of erosions and of granulations, and the turgescence and induration of the mucous membrane in the course of a catarrh—which explain the atresia of the inferior orifice in young women who have suffered for a long time from uterine leucorrhœa.

Finally, we will also cite as a cause of the malady which now occupies our attention, the flexions of the uterus. These affections, when protracted and aggravated, may cause an atresia at the place of the flexion by the intimate contact of the anterior and posterior uterine walls. And as the surface of these parts is almost always the seat of a chronic inflammation which deprives them of their epithelium, adhesion becomes so much the more easy.

Complete atresia of the womb, of whatsoever variety, always effects in the end some marked modification in the position, form and texture of the organ. The degree, however, and the importance of these changes vary essentially according to the age of the patient at the time. Much, therefore, depends on

whether the obliteration existed before and during puberty, or whether it has been developed at a more advanced age and after the return of the sexual organs to the condition of inaction.

In the first case the atresia opposes an insurmountable obstacle to the flow of the menstrual blood secreted by the mucous membrane of the womb. Accumulating above the obliterated part, the imprisoned fluid dilates more and more the walls of the organ and forms a tumor which, by slow accretion, may attain the dimensions of an adult human head, or even those of the last stages of pregnancy. This augmentation of volume is always accompanied by an elevation of the entire uterus and an alteration in its form. During this gradual dilatation the organ loses more and more its oblong form, assumes a more spherical appearance, and finally resembles a ball, being quite round when the atresia is at the external orifice, and when the cavity of the neck is equally dilated; but being furnished with an appendix at its inferior extremity when the seat of the obliteration is at the internal orifice.

The walls of the uterus, under these circumstances, present a very variable thickness. In a case where the uterus contained nearly nine pounds of blood, we found it as thin as a sheet of paper; while in another, where the fundus rose to within two inches of the umbilicus, there was at the superior portion a thickness of one-third of an inch. This difference in the thickness of the walls is due to the more or less considerable formation of muscular fibres, and seems to depend on the rapidity with which the accumulation of blood takes place. When from a very rapid effusion the uterine walls are stretched mechanically and dilated by force, the blood-vessels and the muscular fibres have not time to form. Thus, in the first case cited, the womb of a young girl of seventeen years had attained in the space of nearly seven months, the size of a man's head. In our second case, on the contrary, from the first appearance of the menstrual symptoms until the time when the patient came to consult us, a space of five years had elapsed.

When the sanguineous ecchysis takes place very rapidly, or when, although slow, it attains to a very great amount, the thinness of the walls may become so considerable that they

finish by bursting, and discharging their contents into the abdomen, when they induce a fatal peritonitis. We believe it is extremely rare for the blood to force its way through one of the tubes.

Atresia is of much less importance when it takes place at an advanced age, for then the menstrual phenomena have disappeared. It will never attract the attention of the physician, except when the secretion of mucus becomes more abundant than in the normal state, and accumulates above the obliteration. This condition is known by the name of hydrometra, and we will return to it hereafter.

Symptoms and Progress.—Atresia of the uterus does not produce appreciable phenomena except when it obstructs the flow of the blood or mucus secreted by the internal surface of the organ. We shall speak, in the article on **hydrometra**, of accumulations of mucus. For the present we will attend only to the symptoms presented by an accumulation of blood, or **hæmatometra.**

Ordinarily, its first appearance is at the approach of puberty. About the expected epoch of the first appearance of the catamenia, we remark in the young girl feverish symptoms of variable intensity. She complains of a sensation of weight, heat, and uneasiness, in the pelvis. Sometimes there are also violent pains in the loins and in the abdomen, like those of child-birth. These are often accompanied by trouble in the functions of the digestive tube, and by vomiting, diarrhœa, etc. Still no sanguineous discharge is perceived. At the most, there exudes from the vulva a larger or smaller quantity of mucus. Afterward these accidents moderate and even disappear for some weeks, at the end of which time they return, and again disappear. These phenomena are reiterated three, four or more times, until the parents of the patient, anxious about these powerless efforts of nature, have recourse to a physician. He most generally thinks the case one of difficult menstruation, such as is so often seen at the period of puberty. He is the more confirmed in his opinion by any symptoms of chlorosis, such as usually accompany the accidents we have described. The little benefit obtained from preparations of iron and divers emenagogues, etc., and the ever-

increasing intensity of the functional troubles, determine him finally to require a more minute examination of the sexual parts. But as the young girl is often still a virgin, he cannot practise the vaginal touch. Hence, exploration gives him no information, for at this stage of the disease the accumulation is generally not considerable enough to permit the fundus of the organ to be felt by palpation above the symphysis pubis. Under such circumstances, it is important and indispensable to have recourse to the touch by the rectum. It was by this means alone that we succeeded, in two analogous cases, in discovering the true source of mischief. This exploration is all the more desirable, because the patients, even at this early stage of the malady, complain of painful and difficult defecation. In the two cases just referred to, we perceived a round patulous tumor, which filled the true pelvis, and rendered difficult the introduction of the finger into the intestine. The least pressure provoked violent pains.

When the disease is of long standing, and when the rectal exploration has rendered it probable that a considerable quantity of blood has accumulated, we need no longer defer making the vaginal touch, as it is not now prejudicial to the patient, the treatment exacting free entrance into the vagina.

Generally we find the superior portion of this organ dilated, and the mucous membrane quite smooth, its folds having disappeared. When the effusion is not too great, the neck of the womb is rather lower than in the normal state. Generally, also, the conical projection which it makes into the vagina can be perceived. This projection gradually disappears as the accumulated fluid increases, and the cavity of the neck participates in the dilatation. Hence, at an advanced period of the malady, the os tincæ has completely disappeared, and the finger recognizes a spherical tumor, often of considerable size. At this epoch the fundus of the organ has risen above the symphysis pubis. Percussion recognizes this fact at the hypogastrium, as well as palpation, which discloses a circumscribed tumor, sometimes movable and very painful to the touch.

When atresia in the adult woman is in the neighborhood of the internal orifice, the os tincæ does not present the modifications we have indicated; for, although the augmentation in

the volume of the womb is enormous, its normal form is always preserved.

The subjective phenomena increase in intensity in the course of the disease. The sensations of pressure, of weight, of fullness in the pelvis, become continuous. The rectum and the bladder act but imperfectly. Nutrition and assimilation are seriously compromised. The body wastes, the strength departs, and symptoms of anæmia appear, with a train of nervous difficulties often very distressing. It is especially at the epoch of menstruation that the patient has the most violent sufferings to endure. The pains redouble their intensity. They are then real uterine colics, accompanied sometimes with chills, with frequent vomiting, syncope, and convulsions.

When the obliteration of the external orifice is caused only by a membrane across the passage, the blood collected in the womb, aided by the contractions of the walls of the organ, sometimes spontaneously burst forth. The distended membrane breaks, gives passage to the liquid, and instantly the patient feels herself relieved. But when the adhesion is more firm, and no artificial opening is made for the blood, the disease, sooner or later, must become fatal, either by the rupture of the walls of the uterus; by an inflammation of the peritoneum, which is being continually irritated and distended; or by an attack of general marasmus, fatal to a patient who has been weakened by such prolonged sufferings.

Diagnosis.—Congenital atresia of the uterus, complicated by the retention of the menstrual blood, is liable to be confounded with many other morbid states.

We will mention here first, on account of its frequency, **the delay in the appearance of the courses accompanied by symptoms of dysmenorrhœa,** when the sexual system has attained perfect development. The analogies which this state presents with that of atresia, might at the outset lead the physician into error; for here too the patient suffers painful uterine colics, which return at tolerably regular intervals, and are accompanied by gastric troubles, and by symptoms of chlorosis. However, with attention, the diagnosis cannot long remain doubtful; for, when the retention of the menstrual blood is caused by an obliteration of the womb, this organ will soon

acquire such an increase of volume that it can with facility be perceived at the hypogastrium. At this epoch, the exploration by the rectum will always show that the uterus is dilated. If in any cases these characteristic signs of atresia should fail, and the disease should appear to be progressing in a dangerous manner, the vaginal touch cannot be longer deferred, even in virgins. For, besides being the only means for discovering the existence of an obliteration of the vagina, this mode of exploration enables us to ascertain the modifications induced by the atresia on the os tincæ. Besides, vaginal exploration is indispensable if the uterine sound has to be employed for the diagnosis.

The experience we have had on this subject shows that this instrument cannot but have some utility, inasmuch as it affords evident proof of the permeability of the cervical canal and of the cavity of the womb, thus establishing the absence of atresia. For more ample details, we will refer the reader to the work which we published some years ago upon the utility of the uterine sound.* There can be no doubt that where complete atresia exists, the sound will be arrested, and will not pass without violence beyond the obstacle. But it is also true that even when the uterus is permeable, the instrument cannot always be introduced, so that this fact is of no value for diagnosis. Moreover, atresia of the external orifice, which is a most frequent and important variety, does not permit the use of the sound. For when the neck has united in the dilatation, and the os tincæ is completely effaced, it is utterly impossible to discover the place where the vaginal portion is to be found, and to determine where the attempt to introduce the sound should be made. We have already said that, with very rare exceptions, atresia situated in the superior portion of the cavity of the neck or at the internal orifice, is not formed, except at the period of the involution of the womb. Hence, exploration is very rarely possible. Cases of this kind can never be recognized with certainty by means of the sound, because they are indistinguishable from simple contractions of the cervical canal.

* Beiträge zur Geburtskunde und Gynæcologie, vol. i., p. 173 *et seq.*

From what we have said, it is evident that by means of the sound we can exclude the idea of an atresia, but we can never prove its presence with certainty.

The obliteration of the vagina may also be confounded with that of the womb. In fact, whether this affection be caused by an imperforation of the hymen, or by adhesion of the walls, whether it be congenital or acquired, it manifests all the symptoms of the retention of the blood which we have described above. Inspection alone of the vulva will disclose the imperforation of the hymen. The introduction of the finger will, without difficulty, lead to a correct diagnosis if the atresia be situated higher up. The exploration of the rectum should not, however, be neglected, as by it the dilatation of the vagina can often be perceived.

Treatment.—From what we have said respecting the congenital variety of atresia, and that formed before the critical age, it is clear that the first duty of the physician will be to afford an escape to the pent up fluid, whose too long retention will inevitably produce fatal results. The operation is performed in the following manner: The patient is made to recline upon a very short bed in the same position as for parturition. The physician, placed in front of her, begins by introducing a finger into the vagina to discover if any trace of the os tincæ remains which might indicate the place where the puncture should be made. We have said that, when it is the external orifice that is obliterated, the vaginal portion of the neck has almost always completely disappeared. When once the dilatation has become considerable, the most minute examination fails to discover any trace of the original opening. In these cases, nothing is to be done but to choose for the operation the most depending and accessible point of the tumor which the lower portion of the womb forms in the vagina. The most convenient instrument for this puncture is a large trocar, about eight inches long, and three lines thick, having a curvature corresponding with that of the axis of the pelvis. This instrument is thrust into the point selected, through the walls of the uterus, and carried on, according to the size of the tumor, from one to two inches, into the cavity of the organ.

When the obliteration is higher, a smaller trocar may be

used, having a curve like the former. After introducing the instrument through the still permeable portion of the cervical canal until its extremity touches the stricture, the handle is strongly pressed down, and by gentle rotatory movements, attempts should be made to penetrate in the direction from behind forward, and from below upward. When the hand perceives no further resistance, the point of the trocar has entered the cavity of the womb.

As soon as the staff is withdrawn, the accumulated blood generally flows out with facility. It is a dark brown liquid of the thickness of tar, and is sometimes quite fetid from decomposition. When there is any delay in the flow, it may be facilitated by means of an injection of tepid water thrown through the canula of the trocar. At the same time a continued pressure upon the hypogastrium should be made with one or both hands.

When the disease has not been of very long duration, and the walls of the uterus have not undergone any very considerable thinning, they return to their original position by contracting as the liquid flows out. We have even found the os tincæ form itself anew, little by little, during the evacuation of the blood, in consequence of the contractions of the muscular fibres. At the end of the operation we have been astonished to perceive by the touch that it had almost entirely resumed its normal proportions.

To prevent the artificial orifice from closing again, it is imperative to leave the canula remaining during five or six days. If, on its withdrawal, the opening shows any tendency to contract, it may be kept open by the introduction of a piece of prepared sponge, or by making some incisions through the borders of the wound.

We have in this manner operated upon three cases of atresia of the uterus. Not only have we lost none of the patients, but we have not even seen any accident of importance follow the operation. We cannot, therefore, class ourselves with those who see in it such great dangers. Perhaps they have been led into error by instances of atresia of the superior part of the vagina. In fact, we have ourselves had the experience that the operation in this class of anomalies is far more serious, and is liable to be followed by very dangerous consequences.

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Art. II.—Incomplete Development of the Womb.

We designate under the name of **incomplete development of the womb,** two classes of anomalies which it is important to distinguish. Either the organ has preserved, until after puberty, the configuration which it presented in the fœtus, or rather in the new-born infant; or while retaining the form of a well-developed uterus, it has not its normal dimensions, but has remained remarkably small.

The fœtal form of the uterus is characterized by an extreme length of the neck relatively to the body. The organ, as a whole, does not assume, as in the adult, the form of a pear, but that of a cylinder. The distance from the internal orifice to the fundus of the organ does not, in certain cases, exceed half the length of the neck. This anomaly has been found in subjects of all ages. We have seen an anatomical specimen of this kind taken from an adult female. The cavity of the body, properly speaking, was not more than nine lines in length, while that of the neck was fourteen lines. It is unnecessary to add, that between these extreme degrees of fœtal formation and the normal configuration, there are a great number of intermediate forms.

The second class of incomplete development of the womb, is that in which the anomaly consists only in a diminution of all the diameters of the organ. It is very seldom, however,

that any but the first class are met with. The other parts of the sexual system may be perfectly formed, but a defective development is sometimes found coexisting in the ovaries, the vagina, the breasts, etc. This fault of conformation is most frequently met with in women of a weakly appearance, who have suffered, during the period of their development, from constitutional diseases, such as scrofula, rachitis, or chlorosis. Still, this is not always the case, for we have ourselves observed the anomaly in question several times in subjects of a robust and perfectly organized constitution.

The incomplete development of the womb is of considerable importance for the practitioner, for it is always the cause of certain troubles in the functions of the sexual organs. The inevitable results of this defect of conformation, are a complete amenorrhœa, or at least a very scanty, insufficient menstruation, and almost always sterility. And these disturbances are the more serious because we possess no certain means of removing the cause of the evil. Some authors have claimed that this anomaly often gives rise to sanguineous congestions in other organs, as, for example, in the brain, the lungs, the liver, the spleen, etc. We have not been able to confirm this statement in a single case, although we would by no means deny its possibility.

The diagnosis of the anomaly, now occupying our attention, depends principally on the results of internal exploration. Very often the vagina is found contracted in its length and breadth. The os tincæ is notable for its small size; it sometimes forms a rounded prominence scarcely as big as a pea. Or it is in breadth that it is principally diminished; it then takes the form of a slender, pointed little cone; the external orifice is also remarkably small. When we have succeeded in introducing the sound through the cavity of the neck, which generally is also contracted, this instrument is found very useful for diagnosis. The shortening of the whole organ is thus recognized directly and with a certainty which is confirmed by the presence of the functional troubles previously enumerated.

All the cases of this anomaly which we have had to treat, have obstinately resisted our repeated efforts to determine a

more considerable afflux of blood toward the pelvic viscera, and thus to bring on a more copious menstruation. Others have not been more fortunate. Kiwisch, for example, says he has had the same experience. He advises also, with much propriety, an avoidance of too violent emmenagogues. We think that in such cases the physician has nothing further to do than as far as may be to strengthen the constitution of the patient by a proper hygienic regime. Perhaps he may thereby succeed in ameliorating, little by little, the condition of the womb?

[Our experience, in this particular, is somewhat more encouraging than that of the author. We have found that irritants applied to the womb, internal local stimulants, dry cups, by means of an exhauster attached to a long glass tube applied daily to the os tincæ, leeches to the vaginal portion of the cervix, have determined an afflux of blood to the part. Thus the uterus has been, in several instances, enlarged, and conception has followed.]

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Art. III.—Atrophy of the Womb.

Atrophy of the womb is a morbid state in which, after being regularly developed, this organ, from different causes, loses its dimensions and its normal configuration, and is reduced to a much smaller volume.

We may here distinguish two varieties: **concentric atrophy,** so named because the diminution of the volume of the walls of the organ is united with a contraction of the cavity in such a manner that exteriorly the organ appears very much smaller; and the **eccentric atrophy,** in which the diminishing of the walls is accompanied by a dilatation of the cavity, so that the uterus, although smaller in size and weight, still presents a larger surface.

The most frequent variety of concentric atrophy is owing to the **senile** alterations of the organ. They are met with in the autopsies of old women who have long passed the critical age. They are also sometimes observed in younger subjects whose organism has suffered from chronic diseases, from frequent pregnancies following close to one another; who, in other words, have fallen into a premature marasmus from some debilitating cause. This atrophy is either general, that is to say, spreads in a general manner over the entire organ, or it only attacks certain parts of the womb. Among these **partial atrophies** there is one of a very important and very serious nature. It is that which comprehends only the internal orifice of the uterus. This anomaly may often aid in the formation of contractions and of entire obliterations of the canal of the neck: it also predisposes to various flexions.

When the senile atrophy is **general,** the entire organ is small and is flattened from before backward. The cavities of the body and the neck have lost much of their capacity. The walls are much thinned at the expense of the muscular tissue. The parenchyma is soft and doughy to the touch. Upon the surface, on section, the arterial vessels are seen to protrude more than usual, and they frequently possess a high degree of rigidity, which augments still more the disposition of the exterior walls to break. Hence, under the influence of certain exterior circumstances, ruptures may take place, or extravasations of blood into the tissue of the organ, which last is known by the name of **uterine apoplexy.** These sanguineous effusions are located more often in the fundus of the womb, less frequently in the posterior wall. They are little points, varying from the size of a pea to that of a pigeon's egg, and are filled with black, semi-coagulated blood. When the atrophy is of longer standing, the blood has already undergone the metamorphoses known to every one, and forms a rusty brown mass, more or less liquid, composed of modified blood-corpuscles and of coagulated fibrin. Sometimes, when there is an opportunity to examine a very recent case of apoplexy, a sanguineous effusion is simultaneously found in the cavity of the womb.

A second cause of concentric uterine atrophy is the compres-

sion exerted upon the organ by certain tumors situated above it or upon its sides. It will suffice to mention here the fibroid sub-peritoneal tumors, and the solid neoplasms of the ovaries, which, compressing the uterus without raising it, lengthen its vertical diameter. The same effects are also observed when any considerable exudations of the peritoneum, becoming organized, surround the womb, and when large tumors exist which have their origin in the walls of the pelvis.

Finally, disturbances in the innervation of the organs of the pelvis, such as are met with after certain paralytic affections, also seem prejudicial to the work of assimilation in the womb. We have noted some facts which support this assertion. We have seen young women in good health, and perfectly regular, attacked by paralysis of the inferior half of the body. Soon afterward the catamenia disappeared, and the uterus presented, on exploration, a remarkable smallness. In some cases we have been able to demonstrate by the autopsy that a veritable atrophy of the organ was the cause of this phenomenon.

We have met with the **eccentric atrophy** at the period of decrepitude, when there has been a secretion of a considerable quantity of mucus (hydrometra), and in younger subjects, when there has been a rapid effusion of blood, complicated with atresia, or, indeed, after a puerperal affection of the uterus, followed by fatty degeneration of the muscular tissue.

In a practical point of view, senile atrophy is important only from its consequences. We have already said that it is sometimes complicated with apoplexy, which is often accompanied by profuse external hæmorrhages. It is also liable to cause contractions and obliterations of the neck, and may thus give rise to large accumulations of mucus in the cavity of the uterus. For more ample details on this latter point, we refer to the article on hydrometra. The form due to the compression exerted by neighboring tumors is of secondary importance, and has only a scientific interest.

The disturbances of nutrition provoked by defective innervation, are generally accompanied by scanty menstruation, or indeed, by complete amenorrhœa. We should look for the cause, less in the affection of the womb than in the atrophied

condition of the ovaries, which in such cases is an almost constant complication.

The diagnosis of the different forms of atrophy which we have described, is based partly on their etiology and partly on a direct examination of the changes which the uterus presents. For this last purpose we employ the vaginal touch and the uterine sound. Still, it is not always possible to distinguish the smallness of atrophy from that of incomplete development. This can only be done in those cases where a previous exploration has made known the dimensions which the organ presented in its normal state; or where the antecedent integrity of the functions has demonstrated the presence of a regular development; or, finally, where the causes of the atrophy are known.

As for the results to be anticipated from medical treatment, it is clear that inability to remove the causes of the evil, must render abortive all the resources of art. In fact, if we exclude senile marasmus of the genital organs, we find that the large tumors of the uterus, of the ovaries, or of the pelvis; the organized exudations of the peritoneum; the derangements in the innervation of these parts, are all of them affections which almost invariably resist every therapeutic appliance. And even if there were a cure effected, it would not be realized before the epoch when the atrophy of the womb could not disappear.

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Art. IV.—Hypertrophy of the Womb.

§ 1. *Primitive Hypertrophy.*

Kiwisch relates that he has found sometimes at the epoch of puberty, a hypertrophy of the uterus, which must be, so to speak, a prēmature development of this organ. This anomaly is recognized by a complete disproportion between the size of the womb and the age of the individual. We have for a long time devoted special attention to this point of pathology; but, up to

the present time, we have not met with a single case in which we could ascertain the presence of such a primitive and general hypertrophy. On the contrary, we are still convinced that the augmentations of volume which are observed at this period of life, are due to congestion or to phlegmasia of the uterus. For of these affections some make active progress and terminate by a rapid augmentation in the dimensions of the organ; others are characterized by a longer delay, and constitute the **chronic metritis,** known to every physician by its obstinacy. But, as we shall show hereafter, the changes of texture which characterize chronic metritis are not at all identical with those presented by hypertrophy: and we think, therefore, that Kiwisch is wrong in classing these cases among hypertrophies. Still, it will not be denied that the vaginal portion of the neck is sometimes the seat of a partial hypertrophy. Professor Virchow, who has latterly occupied himself with this anomaly, has called it a **polypiform or trumpet-shaped prolongation of the lips of the orifice.** In certain cases, the os tincæ attains to the length of 6 inches and more; it then hangs outside of the vulva, and might, to a careless examiner, resemble a complete prolapsus of the uterus. It has the form of a cylinder or a cone, sometimes even of a wedge. Its surface is smooth, or covered with numerous little depressions of the size of a grain of millet seed, with funnel-shaped openings penetrating into the depth of the tissue, where they communicate with little cul-de-sac cavities, of a variable size, and produced by an enlargement of the glandules. These cavities are generally filled with a gelatinous mucus.

After the learned researches of Virchow, it is placed beyond a doubt, that the presence of these glandular enlargements has an important influence in the development of the species of hypertrophy now occupying our attention. We have often observed this anomaly. In two cases of amputation of the hypertrophied portion, which were followed by a very copious hæmorrhage, we were able to convince ourselves of the accuracy of the assertions of Virchow, who says that the polypiform prolongations of the os tincæ are always very rich in arterial vessels.

Very often the disease is limited to one of the lips of the orifice. In our own observations, we have found that the

attack is most frequently limited to the anterior lip. This affection cannot but be of great practical importance: for it may not only singularly interfere with coitus, rendering it painful, or even impracticable; but the presence of such a tumor is almost always the source of a very considerable mucous secretion, which is very disagreeable for the patient. Neither is it uncommon to see ulcerations form upon its surface. Every movement of the body provokes painful sensations, which often radiate toward the sacral, lumbar, and inguinal regions, and are often accompanied by varied nervous phenomena.

The etiology of hypertrophy of the os tincæ is extremely obscure. Still, some of our observations seem to prove that compression of long duration, severe contusions which the parts undergo during the act of parturition, as well as the hyperæmia hence resulting, are not without influence in the development of this malady. However, we very willingly agree with Virchow, that there must have been a certain predisposition to this affection; and, according to this savant, this predisposition is to be traced to the formation of follicles of an abnormal size in the lips of the os tincæ.

The **diagnosis** presents no serious difficulties. We will only repeat that at first sight it is possible to confound the tumor with an incomplete prolapsus. But a somewhat minute exploration will prevent all mistake. Attention must be given to the form of the tumor, which also in hypertrophy is irreducible. When the seat of the trouble is in one lip only, the uterine orifice will be found more or less distant from the inferior extremity of the neck.

As for the **treatment,** we have so often observed the small efficacy of therapeutic measures, whether general or local, that now we practise nothing but the amputation of the hypertrophied portion.

For a description of the operation, we refer the reader to the chapter treating of vegetations and cauliflower excrescence of the uterus. We will only add that, as considerable hæmorrhage should be expected, the necessary hæmostatics should be at hand. In a case where we operated, the loss of blood was so profuse, that in the absence of the actual cautery, we were obliged to cauterize the wound with melted sealing-wax. The

following case, which we ourselves saw, is not without interest. A woman, 36 years old, had for seven years suffered from the disease in question. The origin of the disease dated from her third confinement. Many physicians had treated her without success, and by the most various methods. She came to us. We performed the operation of amputating the posterior lip of the orifice, which was nearly an inch long. Six weeks after, she conceived, so that one would be led to think that hypertrophy was the cause of the sterility which had lasted for several years, especially as seven months after the birth of the fourth child, a second conception occurred.

[We have seen repeated instances of so-called "elongated or conical-shaped cervix uteri." They are invariably accompanied by sterility, and in some half dozen cases we have known amputation followed by speedy conception. In two cases no result was perceptible; but in one of these the patient soon after the operation became a widow.]

§ 2. *Secondary Hypertrophy.*

Under the head of **secondary hypertrophy** is ordinarily included some augmentation in the bulk of the uterus, which occurs as a result of other affections of this organ. It is met with in all the cases where the walls of the womb have been for a long time exposed to a dilatation or a permanent distention, such as occurs in cases of a slow accumulation of liquid, and in cases of fibrous tumors, whether round, polypiform, or of other varieties. We do not acknowledge any instance as one of hypertrophy, properly so called, except there be a notable augmentation in the mass of the muscular fibres, and in the vascular system of the uterine walls, while all the cases where the excess of volume is due only to the production of cellular tissue, to congestion, or to exudation, should enter, according to our view, into the category of chronic inflammation, with which we will occupy ourselves hereafter.

Secondary hypertrophy is always of little importance, compared with the primitive alterations which produce it. We shall indicate the etiology and symptoms in treating of the various diseases which it accompanies.

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Art. V.—Flexion of the Womb.

Pathological Anatomy.—In this chapter we shall entirely omit the consideration of the **deviations** or **lateral flexures** of the uterus. These are for the most part congenital anomalies, and are due to an incomplete development of one of the round ligaments. They are of no practical interest. We shall, therefore, pass them by, and occupy ourselves with the anatomical symptoms of **anteflexion** and **retroflexion.**

These displacements, as their name indicates, consist in a flexion of the uterus upon itself, so that the body of the organ forms an angle with the neck, and falls, according to the degree of the malady, more or less profoundly into the vesico-uterine cavity, or into the space situated between the womb and the rectum. The angle which the axis of the body forms with that of the neck is then open either before or behind.

At the autopsy, this anomaly is ordinarily recognized at the first glance, after the intestines are removed. An inspection of the organs of the pelvis shows that the fundus of the uterus no longer forms the superior portion of the organ, but that, on the contrary, the strait of the pelvis is occupied in anteflexion by the posterior wall, and in retroflexion by the anterior wall of the body of the organ. The part displaced, if seized by the hand, can generally be restored without difficulty to its normal position, which it quits anew to resume the old one, as soon as it is left free.

By looking more closely, and especially by exploration from the vagina, we almost always perceive that the uterus is not only flexed upon itself, but is also entirely displaced, in such a manner that the anteflexion is complicated with an anteversion, and the retroflexion with a retroversion.

When the disease is old and is strongly marked, adhesions of the uterus to the walls of the pelvis, or to the adjacent organs, are frequently present. These adhesions are the result of partial peritonitis, and are formed by bridles of cellular tissue, more or less dense, and of very variable size. When these bridles are very short, and proceed in an anteflexion to the anterior wall of the pelvis, and in a retroflexion to the posterior wall, it is clear that they will interfere with the mobility of the organ, and render reduction impossible.

The frequency of these adhesions in the cadaver, led Virchow to admit that the flexions of the womb in most cases originate in partial peritonitis. The exuded masses shrink and shorten little by little during their metamorphosis into cellular tissue, and thus draw the fundus of the organ with them, either forward or backward. We have no intention to deny that sometimes flexion may originate in this manner. Such cases may occur when, during the traction exerted upon the fundus of the organ, the neck is fixed by short and resisting vaginal walls. Still we affirm that peritoneal adhesions are by no means the sole cause of flexion, or even the most frequent or important cause. In the first place, there are a multitude of women who are affected with this infirmity, and who have never evinced, during the whole course of the malady, any symptoms of partial peritonitis. But conceding this fact, which to us is not of much importance, we will remark, that the cases are not very rare where in autopsies flexion is found without any trace of adhesions. Further, we need not add that any bridle binding the uterus to an adjacent organ, cannot be considered without restriction as a cause of flexion. This would be the case only when upon the reduction of the fundus of the uterus, a strong tension upon the bridle was noticed. From this we might infer that during the organization of the exuded material, a retraction and shortening of the tissue had taken place, and had induced a displacement of the uterus.

Inspection and palpation of the diseased organ, when removed from the body, will show that at the point of flexion and in its neighborhood, the neck is considerably flattened from before backward, and that the tissue of that locality is less resisting, softer and more relaxed, especially upon its concave

aspect. We have observed also, in several anatomical specimens, that the yellow color of this space is often in strong contrast with that of the neighboring parts, which are of a clear red or a livid blue. We have in a single case only been able to make a microscopic examination of it; and although a general conclusion cannot be inferred from a single fact, still we think that this yellow color, as well as the relaxation and want of elasticity of which we have just spoken, are in a great degree owing to a fatty degeneration of the uterine tissue. We leave to professional anatomists the decision of this assertion. Perhaps this metamorphosis is itself the cause of the atrophy of the parenchyma, which other observers have found. Virchow says that in these last cases the muscular fibres are replaced by faded connecting tissue of a tendinous appearance.

Most authors designate the part bordering the internal orifice as that where most often the angle of flexion is found. It is there that we have observed it in all the cases we have studied. The reason of this appears to be simple. For here is the point where the vagina joins the neck of the womb, which is thus more or less fixed in its position, while the body being more voluminous and weighty, is more movable and can be easily displaced, either by its own weight or by an exterior force. When such motion takes place, the designated part will evidently be that which will yield the least.

The degree of flexion is very variable. It may be limited to a slight curvature of the organ. The angle is then very obtuse. In the other extreme, the womb is completely folded double, and the angle is very acute, the most convex portion of the fundus being sometimes upon the same plane as the inferior extremity of the os tincæ. We have never met these extreme degrees of flexion, except in women who have never had children. We think the cause of this may perhaps be, that in consequence of numerous pregnancies and labors, the upper portion of the vagina loses its rigidity and elasticity. In fact, the more the walls of the vagina possess of resisting power, the better they fix the neck of the uterus in its normal position. Hence, when by some cause the body of the organ is turned over, either forward or backward, the angle of flexion, however inconsiderable, must be very acute. If, on the contrary, the

vaginal walls are relaxed and easily yield, the same cause which forces the fundus of the uterus to bend forward, will cause the neck, when not firmly fixed, to be borne backward. Hence, the anteflexion will combine with an anteversion of a more or less marked extent, and the angle of flexion will naturally be much more open. It will be the same in retroflexion.

Finally, in cases of flexion, the general texture of the uterine walls manifests almost invariably some alterations. Very often one is struck at the first glance by their color, which is a livid red, or sometimes a slate-colored grey. This always indicates that there is a chronic stasis of the blood in the walls of the womb. In such cases there is always more or less augmentation in the volume and weight of the fundus of the organ. According to the longer or shorter duration of the affection, the walls are found harder, more rigid, thickened, and less moist; or they are, on the contrary, lax, soft, and macerated. The vessels are dilated and full of blood. In other words, the various alterations are here met with which are peculiar to chronic metritis. The cavity of the womb is also dilated, often containing a very considerable quantity of mucus, which is watery, transparent, and very liquid; or else viscous, yellowish, and sometimes bloody. This abnormal accumulation of mucus proceeds partly from a catarrhal hypersecretion of the uterine mucous membrane, which always accompanies chronic inflammation; and partly from the fact that at the place of flexion there is formed, by the contact of the anterior and posterior walls of the neck, a narrowing which prevents the free escape of the liquid into the vagina.

And here we will add, that at the autopsy of two old women affected with very marked flexions of the womb, we found at the place of the curvature a complete atresia. It is probable that this was due in part to senile atrophy of the uterine tissue, and partly to the accompanying chronic catarrh, which had caused the epithelium of the mucous membrane of the neck to fall off; the walls had become glued together, and little by little a solid union had been formed between the two excoriated surfaces. In one of these cases the body of the uterus, in consequence of the retention of the matters secreted, was of the

size of a goose's egg, and the walls were much thinner than in the normal state. There was then a veritable **hydrometra.** In the second case (the woman was more than seventy years old), the quantity of mucus accumulated in the uterus was about five drachms.

We do not know any case where, in a young woman, and still menstruant, an atresia was formed in consequence of a flexion. Once only we discovered a contraction which so closed up the internal orifice that it was necessary to employ some force to introduce an ordinary sound, and that one of small calibre. Another of our patients, thirty years old, affected with a retroflexion, died two days after the return of the menses. We found the womb considerably dilated. It contained nearly $2\frac{1}{2}$ ounces of semi-liquid, semi-coagulated blood in little clots.

When the flexion is very marked, the os tincæ is softer to the touch, and less resistant, the external orifice being almost always a little open, even in women who have never had children. We think this phenomenon is due to the fact, that the fundus of the organ being ordinarily, as we have already stated, more voluminous and heavier than in the normal state, it exerts, especially in the new position which it has taken, a considerable tension upon the walls of the body and neck of the uterus. In anteflexion, it is the posterior wall; in retroflexion, the anterior wall, which is thus distended. This traction extends even to the os tincæ, and necessarily displaces one of the two lips. It is for this reason that the orifice is always gaping. We think we have elsewhere* shown with proof that often in cases of flexion, the vaginal portion of the neck is also the seat of superficial erosions and even of deeper ulcerations.

The organs situated in the neighborhood of a flexed womb almost always, also, exhibit some change, either in position or in texture. Secondary affections of the rectum and of the bladder are the most frequent. Alterations also take place in the vascular system. Thus at the autopsy, varicose dilatations of hæmorrhoidal and vesical veins are often met with, and the mucous membrane of the urethra, of the bladder, and of the rectum present the anatomical characteristics of chronic ca-

* Beitræge zur Geburtskunde und Gynæcologie, vol. i., p. 49.

tarrh. The portions of the peritoneum which are in contact with the womb, have traces of frequent inflammation; they are covered with exudations more or less organized, though sometimes indeed there is only a livid or greyish discoloration of the diseased parts. Finally, it is scarcely necessary to add, that the uterine catarrh which always accompanies flexion, spreads also, in most cases, to the mucous membrane of the Fallopian tubes and of the vagina, and that in the cadaver these organs exhibit the anatomical alterations peculiar to this affection.

Etiology.—According to our observations, it is in young adult females that we have most often to treat flexion of the womb. The majority of our patients have been from thirty to thirty-five years of age. We think we have found the explanation of this in the fact that at this period of life the sexual apparatus of women, by the frequent occurrence of pregnancy and parturition, is the most exposed to dangers of every kind, and to a crowd of influences causative of disease, which cannot but be favorable to the development of flexions.

Furthermore, we should by no means forget, that it is at this epoch that the existence of a flexion makes itself felt by the patient, and can be recognized by the physician. The disease is perhaps of longer standing; but the patient who is affected with it does not seek the assistance of art until troublesome symptoms cause her to recognize her malady.

We know that flexion has been sometimes met with at the autopsy of very young girls, or at least of such as had not yet attained the age of puberty. On the other hand, we have often been present at the opening of the bodies of women of sixty and more, in whom flexion has been found which had not before been suspected. In these cases it was impossible to know if the disease was developed in old age, or at an earlier period.

Still, we think ourselves able to maintain that the flexion of the uterus is, in infancy and old age, an anomaly of very secondary importance. For, during the first period of life, the menstrual congestion of the organs of the pelvis not having yet taken place, there is an evident absence of one of the essential causes of most of the symptoms which accompany this disease. On the other hand, the small development of the body of the

womb will prevent its displacement from impeding the functions of the adjacent organs. It is nearly the same thing in old age. In the course of the senile retraction of the womb, this organ considerably diminishes in size; then, as the catamenia have ceased, the patient suffers no longer from the abundant hæmorrhage, the violent colics, or from the train of serious phenomena which, in the adult woman, accompany each return of menstruation when there exists a flexion of the uterus. These same circumstances explain also a curious fact which is often observed, namely, that women affected with a flexion of the uterus, experience a sensible amelioration in their state as soon as they have passed the critical age; the symptoms of the disease disappear one after another, and we see the spontaneous return to a state of health, such as previously all the efforts of the physician could not establish.

Most of the patients whom we have treated were married women, and this is very natural, for it is in this class of women that the greatest number of pregnancies and labors occur. They are, therefore, more often exposed to contract this malady than unmarried women.

The epoch of marriage, however, appears to us not to be without importance for the etiology of this affection. A multitude of observations authorize us to express the opinion that a premature marriage, taking place before the organs have attained their complete development, has much influence in producing flexion of the uterus. It is true that here other circumstances are to be considered. Thus, the women who, within a short period, have had a large number of labors, are more subject to this malady than others who have borne children less often and at longer intervals. As the women who marry very young generally belong to the first category, the *predisposing* cause of which we have spoken is seconded by the great weight of the organ, which is the *occasional* cause of this malady, and well suffices to explain the frequency of flexion in women married at a very tender age.

In noticing the time of parturition, we have, in a statistical table already published, established a curious fact, namely, that in an aggregate of two hundred and fifty-two labors, forty-three of our patients presented twelve premature births and

forty-four abortions, so that in more than twenty-two per cent. of the cases, pregnancy had been interrupted before the time. We think that this fact is by no means unimportant in the etiology of flexion; for it is generally recognized that after a premature confinement, and especially after an abortion, the uterus returns but very slowly to its natural state. Besides, the women who have been prematurely delivered, especially those belonging to the poorer classes, take little care of themselves, get up too soon, and do not observe a very severe regimen. For example, they resume occupations which require severe exertions of the abdominal muscles. It is not therefore astonishing, that exterior pressure causes the fundus of the uterus, which is still very heavy and voluminous, to become displaced and flexed forward or backward.

The progress of parturition, even when it takes place at the normal period, should also attract our attention; for in the 196 cases where our patients had been delivered at full time, we have ascertained that there had been thirty-four cases in which the intervention of art was necessary; fourteen had been delivered with the forceps; sixteen by version. In the four other cases we were not able to discover what was the character of the aid afforded them. In thirteen cases, version was necessary in consequence of shoulder presentation; an anomaly due, no doubt, to a more or less considerable relaxation of the uterine walls during the course of gestation. It is also very probable, that in the greater part of the cases where forceps were used, it was the insufficiency of the contractions which indicated the use of this instrument. But as it is certain that the defective contractility of the uterine tissue, during the act of parturition, very often prolongs the puerperal state of this organ and impedes its return to the normal condition, we have a right to conclude that flexion is oftener met with in women who on one or more occasions have been artificially delivered, than among those who have always had natural labors.

We do not venture to decide whether the excessive distention of the uterus, produced by a multiple pregnancy, and the slower retraction which is the consequence, exert any influence in originating flexion. Still we note that among the forty-three

patients just spoken of, sixteen had given birth to twins. This fact deserves all the more attention, as we think we have fully demonstrated, by our statistical investigations, that accidents of every kind, which are capable, during the confinement, of delaying the return of the uterus to its normal size, are often met with among women who subsequently suffer from flexion of this organ. To support this assertion, we will mention further that among the patients to whom we have referred, the period of delivery was troubled sixty-four times by hæmorrhage; twenty-four times inflammatory troubles followed the birth; eleven times very violent after-pains; eight times profuse hæmorrhages during the labor: in nine other cases, it was not possible for us to discover what had been the precise nature of the trouble.

We have already stated that exterior causes acting upon the uterus in the puerperal state, have an important share in the development of flexion, and that those women who get up too soon after parturition, especially such as immediately undertake laborious work, are much exposed to this malady. Our numerical researches also support this statement; for we have found that in seventy-two cases of labor, thirty-two of our patients had left their beds before the eighth day.

Another point, equally important for the etiology of flexion, is to know whether or not the woman has herself nursed her children. The following is the result of our investigations on this subject. Fifty-four women having flexion of the womb, had given birth, at full term, to one hundred and ninety-six children. Out of this number, only fifty-seven enjoyed maternal nursing. We think that this fact, extraordinary as it at first appears, is not due simply to chance. No one will deny that the irritation of the mammary nerves, at first produced by the efforts at suction of the new-born child, excites energetic contractions in the muscular tissue of the uterus, and thus not only aids in the diminution of the volume of the organ, but also encourages the puerperal processes in general. When this favorable condition is absent, it is evident that the organ, being more voluminous, more weighty, and at the same time more relaxed, will be more disposed to be displaced and to be easily flexed either forward or backward as soon as any external cause whatever shall act upon it.

Finally, we will repeat what we have already stated, that those women whose pregnancies have followed close together, furnish a considerable contingent of the patients troubled with flexions. In reviewing all the facts which we have cited, we necessarily arrive at the conclusion that the changes in the sexual organs due to pregnancy, to parturition, and to the puerperal state, occupy the first place in the series of causes which produce flexions of the uterus.

Hygienic conditions appear to us to be of little importance, but out of fifty-four patients thirty-four belonged to the opulent class. This difference, which in itself is insignificant, may be easily explained. The twenty patients who belonged to the working class lived at Wurzburg or its suburbs, while the majority of the others came from a distance to be treated by us. Residence in the city or the country has quite as little influence upon the etiology of the disease in question.

As to the constitution of the patients, we must confess that the greater number were, when first treated, weak and atonic; but, without doubt, this condition should be ascribed to the duration, and not to the nature of the disease.

Symptoms and Pathogenesis.—Uterine colics of more or less violence, menorrhagia, and metrorrhagia, leucorrhœal discharges, difficulty in micturition and defecation, are the principal symptoms of a flexion of the uterus, which is also accompanied, when the disease is of long standing, by symptoms of hysteria and chlorosis.

The following, as we have ordinarily observed, is the course of these different symptoms:

In the majority of cases, it is the disturbance of the menstrual function which first strikes the mind of the patient and draws her attention to genital affection. The catamenia become very irregular, and often the hæmorrhage appears at intervals more frequent than in the normal state. The period of their return is accompanied by pains in the hypogastrium and sacral region which had never before been manifested. Sometimes at this stage the patient compares it to the pains of childbirth. With the majority of women, the flow from the commencement is very abundant; mingled with the liquid blood are little

clots of variable size, whose escape is preceded by an expulsive pain of longer or shorter duration. In addition to these troubles there is soon found in cases of anteflexion, as in those of retroflexion, a tenesmus of the bladder, which at first is not very intense, but augments rapidly, and soon becomes very violent. It is ordinarily at this period that the patients remark a more abundant mucous flow. Soon afterward sympathetic affections of the stomach manifest themselves. Hence, we have cardialgia, frequent eructations, pyrosis—in short, digestive troubles of various kinds. These, in conjunction with abundant and repeated hæmorrhage, in the end produce serious alterations in the assimilation and formation of the blood, and these troubles are necessarily attended by all the train of phenomena belonging to chlorosis and hysteria. If, in this state the patient be left to herself, she falls at last into a premature marasmus, which not only deprives her of all the enjoyments of social life, but may also threaten her existence, by inducing internal diseases of the gravest nature, such, for example, as pulmonary phthisis.

This is the progress of the disease as the majority of authors have described it, and as we have ourselves observed it. But when they regard as the immediate consequence of flexion of the uterus the whole series of symptoms just enumerated, we think they go too far. We will not deny that this affection cannot but induce serious derangements in the female economy. Still, if we may be allowed the expression, it has latterly become a sort of fashionable malady, the hobby of physicians who are occupied especially with the diseases of women. We are persuaded that they have very much exaggerated the importance of this class of affections, and have attributed to them an influence upon the entire organism which, in our opinion, they cannot exert, except in an indirect manner.

When we first commenced practice, we were among the number of those who, like Kiwisch, Mayer, Simpson, Valleix and others, could not too highly estimate the injurious influence of flexion upon the entire constitution of the patient. We will even avow that it has been painful to renounce an opinion which, up to this time, has been considered by a great number of our most illustrious confrères as one of the most advanced discoveries of our science. Still, in the face of so great a

number of facts proving the contrary, it has been impossible for us not to change our opinion. So we are at present convinced that **flexions of the womb do not acquire any importance, nor are followed by any serious dangers save when they are complicated with an alteration in the texture of this organ.**

We know perfectly well that at present we are almost alone in professing this opinion. It is for this reason that we think it our duty to explain here in detail the reasons which have induced us to publish it.

One of the first facts which occasioned us some doubt upon the dangers of pure and simple flexion was, that at the autopsy of women who during their life had never complained of the least inconvenience in the genital organs, we frequently found well-marked instances of this anomaly. It may perhaps be objected that the physician, too much pre-occupied by the gravity of the disease which produced death, had devoted to it his entire attention and that the troubles existing in the sexual apparatus had thereby escaped his notice. We do not deny that this objection may be well-founded in very many cases. For our own justification we will relate here three facts which are still perfectly fresh in our memory. The first is as follows: We had been treating for more than two years a woman affected with pulmonary phthisis; when an amenorrhœa, which had declared itself in the course of the affection of the lungs, induced us to make a vaginal exploration. This enabled us to recognize with certainty, the existence of an anteflexion of the uterus, which the autopsy afterward confirmed. This discovery induced us to minutely interrogate the patient upon her antecedents. She could furnish no anamnestic sign which could be referred to the disease of the womb. This organ had never exhibited any symptoms of flexion except the amenorrhœa due to the rapid progress of the tuberculous cachexia and to the resulting impoverishment of the blood. The second observation is that of a maiden 32 years old, who died suddenly of epidemic typhus fever. She had always enjoyed the most perfect health, having never suffered any of the anomalies of menstruation, of leucorrhœa, nor any alteration of the urinary functions, etc. At the autopsy a well-marked anteflexion was found. The third

of our patients had previously been treated by Kiwisch; she died of marasmus resulting from a suppuration of the kidneys and the bladder. We attended her for six months; the frequent explorations which the disease of the bladder rendered necessary, caused us to discover the presence of an anteflexion which Kiwisch had also recognized. Up to a little before death the patient menstruated in a very regular manner, only the flow was from time to time diminished. She had never complained of uterine colics, nor of leucorrhœa, nor of any symptom which could have led to the suspicion that a flexion existed. Still the autopsy made by Virchow confirmed its presence. It was not very distinctly marked.

The patients of whom we have just spoken had not arrived at the critical age. Consequently, it cannot be at all objected to us that the senile atrophy of the sexual organs had diminished the severity of the uterine disease. These three cases support the opinion which we have just advanced. We will add, that in none of these three patients was the flexion complicated with any other anomaly, except a scarcely perceptible tumefaction of the body of the uterus.

Besides the fatal cases just referred to, we have at hand numerous observations made on patients during life, which demonstrate with no less evidence the truth of our assertions.

Thus, we have treated three women affected with simple flexions of the uterus, two with anteflexion and one with retroflexion. A minute exploration did not enable us to recognize any complication or other alteration in the texture of the organ. One of the anteflexions was very marked. Still, apart from the hypersecretion from the mucous membrane of the neck, there existed in these patients none of the symptoms enumerated above, and ordinarily attributed to flexions. With two of these women we speedily succeeded in curing the leucorrhœa, and we had no further occasion to see them again. The third came to consult us nearly two years afterward, respecting some alarming symptoms, which she attributed to a sudden suppression of the menses. Her own account was that, in consequence of a cold, the menses had been suppressed for quite a long time; a violent emotion, as she believed, had caused them suddenly to return; but in such abundance, that for several days she was obliged

to keep her bed. The hæmorrhage was preceded for many hours by intense pains, similar to those of child-birth, and located in the hypogastric and sacral regions. After the loss of blood, a considerable quantity of mucus flowed from the vulva. During the following six months, the patient suffered from menorrhagia, leucorrhœa, and from very painful uterine colics, to which were soon added an obstinate constipation and a frequent desire to urinate. It was at this stage that she came to consult us. We found the os tincæ considerably tumefied, softened, and relaxed. The external orifice was sufficiently open to permit the extremity of the index to penetrate with ease. The fundus of the uterus was notably enlarged, very tender at the least touch, and bent forward to the same degree as formerly. These symptoms were evidently of an inflammatory nature. We arrested them by ordering local sanguineous emissions, baths, and warm injections, with the prolonged internal use of the chalybeate water of Brueckenau,* mixed with that of Ragotzi.† When the uterus had diminished in volume, and the leucorrhœa had almost entirely disappeared, menstruation having become normal, the patient was no longer in any respect incommoded. Since that time two years have passed, and she has continued to enjoy excellent health. Still, the flexion exists, and has not undergone any change.

This fact is notable proof of what we have advanced. Pure and simple flexion, without complication, may often exist, if not always, without any bad results to the health. A multitude of other cases have shown us that no special troubles, either general or local, are produced by this affection, except when to it is joined an inflammatory tumefaction of the body of the uterus, a well-marked relaxation and softening, with hypersecretion of the mucous membrane, deep ulcerations of the os tincæ, and repeated partial peritonitis.

Further, the frequency of these complications of flexion must at first sight make it presumable that the latter favors these secondary alterations. In truth, we are convinced that every flexion, sc

* A little town of Franconia (Bavaria).

† One of the numerous gaseous mineral springs of Kissingen, in Bavaria. This water is very rich in chlorates, sulphate of soda, iron and carbonic acid. It contains also a small quantity of iodine.—*A. S.*

soon as it has arrived at a certain degree and a certain duration, must necessarily occasion changes in the texture of the parenchyma and mucous membrane of the uterus. It is only thus that this anomaly of the uterus acquires, in a practical point of view, any great importance. The majority of authors seem not to have appreciated this fact at its just value.

Now the point in question is how and why *flexion eventually almost necessarily induces alterations in the structure of the womb.*

If what we have said upon the etiology of this disease is borne in mind, it will be remembered that a majority of the circumstances which provoke it, are at the same time the cause of a relaxation of the uterine tissue. This relaxation is also a necessary condition to the formation of the flexion, for a uterus that possesses its normal elasticity and tonicity will not become flexed under the influence of a very considerable exterior force. It is only when the tissue in the neighborhood of the internal orifice is somewhat relaxed, that pressure, even if it be feeble, can bend the fundus of the uterus, either forward or backward, according to circumstances.

The relaxation which permits flexion, is also the first cause of the alterations of texture which are manifested at a later stage. For it is not long confined to the muscular tissue which constitutes the greater portion of the uterine walls; it spreads also to the coverings of the vessels, which lose their elasticity, offering but a feeble resistance to the pressure of the blood, and consequently they enlarge and dilate. An accurate anatomical preparation shows that this change in the vascular system is ordinarily but partial. It is not met with in every part of the organ in the same degree. Hence results an unequal distribution of blood in the uterine walls, and, finally, a chronic stasis, more or less distinctly marked. The vessels of the mucous membrane being in direct communication with those of the parenchyma, it is not astonishing that they also participate in the affection of the latter. The disturbances in the circulation, sooner or later bring on a chronic catarrh of the mucous membrane with all its consequences. This membrane softens, the walls of the vessels lose their elasticity and become friable. Thus a very slight afflux of blood toward the womb

easily bursts them, and hæmorrhages follow. It has been known for a long time that the softening of the mucous membrane, when it attains a certain degree, necessarily brings with it the loss of the epithelium, which is of itself the predisposing cause of erosions, excoriations and ulcerations around the orifice.

But the uterine tissue, properly so called, also undergoes, little by little, notable modifications in the course of the difficulties in the circulation which we have described. The slackening in the flow of blood in the dilated vessels produces a very abundant exudation within the anatomical elements of the parenchyma. The transuded liquid coagulates and becomes organized; when it exists in a considerable quantity, there is an increase in the volume of the whole organ. This is what is called **chronic engorgement** of the uterus. In certain cases these accidents are so violent that they bear all the characteristics of a true inflammation; they may then spread to the peritoneal coat of the womb, and afterward to the adjacent parts of this membrane, being accompanied by exudations more or less abundant in the cavity of the peritoneum.

Thus, in our opinion, it happens that a flexion comes to produce alterations in the texture of the uterus. If our explanation is just, it is evident that some relations of causality between these pathological states must necessarily exist.

If we should endeavor to show in what manner these modifications of tissue and of the mucous membrane take place, we should be far from pretending that these series of phenomena are not sometimes produced in an inverse order. On the contrary, we are persuaded that it is not rare for a flexion to follow alteration of the parenchyma. In support of this opinion, we will refer to the frequency of flexions immediately after normal or premature labors. Any one who has had the opportunity to witness a large number of autopsies of women dying in parturition, will have made the observation, that at this epoch, degrees of anteflexion are not at all rare. If the **involution**—the contraction of the uterus—is delayed, and this organ retains a size relatively too great, the thickness of the walls, and the weight of the superior portion constitute a predisposition to flexion, which therefore is easily produced so soon as any external cause acts upon the uterus. Any patho-

•gical condition, which occasions an augmentation of the volume and weight of the womb, may have the same results as the puerperal state. Thus, chronic engorgements of long duration and of a certain intensity, limited to the fundus and to the superior extremity of the body, or fibrous tumors located in the anterior or posterior wall of the uterus, cause a predisposition to flexion. And in every one of these cases the alteration of texture is the primitive malady, the flexion being only secondary.

Diagnosis.—Besides the symptoms which we have mentioned, such as menorrhagia and metrorrhagia, leucorrhœa and the functional disturbances of the bladder and rectum, we have also the results of the internal exploration which may aid us in forming the basis of our diagnosis. We are indeed only reduced to this last method of investigation in cases where flexion is exempt from complications, and where, in consequence, the phenomena which we have referred to these complications, are entirely absent.

We have stated that every well marked anteflexion is combined with an anteversion, just as every retroflexion, to a certain degree, is generally united with a retroversion. We shall find, then, in the majority of cases, the os tincæ displaced; in anteflexion it will be more or less backward, the extremity of the organ being turned toward the concavity of the sacrum, while in retroflexion we shall find it in the anterior half of the pelvis, its orifice being turned toward the os pubis. When the disease is of long standing, the os tincæ is ordinarily engorged; it is also thickened and hard to the touch. When there is no engorgement, it has, on the contrary, little consistency, and is softened and pliable. Generally, the vaginal orifice is sufficiently open to admit the easy introduction of the extremity of the finger into the canal of the neck. In the immediate neighborhood of the vaginal portion of the womb, the bottom of the vagina is usually relaxed and so easily yields to pressure, that one can perceive through its walls the portion of the uterine neck situated above its insertion. According as there may be anteflexion or retroflexion, the finger, by this manœuvre, penetrates into an excavation situated before or behind the os tincæ, and limited upon one

side, by the portion of the neck which is found below the place of inflexion; on the other, by the fundus of the organ situated either before or behind. According to the degree of the development of the anomaly, the fundus is higher or lower and more or less easily reached by the finger. It forms, before or behind the os tincæ, a spherical ballotable tumor, often painful upon pressure. Its more or less considerable size will enable us to recognize to what degree the body of the womb has undergone the alterations of texture which we have described. When abdominal palpation is supplemented by the vaginal touch, and when the walls of the belly are thin and elastic, we sometimes, in anteflexion, succeed in seizing the fundus of the organ between the two hands, which is, of course, impossible in retroflexion. In the latter case, when the anomaly is not well marked, and the fundus of the womb is difficult to reach by the vagina, the rectal touch is very valuable for the diagnosis. It ought, indeed, to be always practised for the ascertaining of the precise condition of the uterine walls.

For some years past, it has been thought that the use of the sound was almost indispensable for the diagnosis of flexions. We have already expressed our opinion upon this subject in former works.* The sound, we admit, can render valuable service in certain rare cases. But we are of the opinion, that in fully two-thirds of the cases, we can very well dispense with it. We need have recourse to it only when our manual explorations cannot recognize whether the tumor, which is situated before or behind the os tincæ, is the fundus of the uterus or not. We shall return hereafter to the inconveniences and dangers of the introduction of the sound into an inflected uterus. We will content ourselves at present with saying that it is from the numerous cases in which we have proved the pernicious effects of this instrument, that we have been led to restrain its use as much as possible, and not to recommend it except when there exists an utter impossibility of establishing a sure diagnosis in any other manner.

In closely examining the different pathological conditions which may simulate flexion, we shall see that very certainly

* Beitræge zur Geburtskunde, vol. i., p. 190.

those cases are extremely rare in which we shall be obliged to have recourse to the sound.

It will be objected, perhaps, that as the use of this instrument greatly facilitates the diagnosis, it is indispensable to those physicians who are not specialists, though a great amount of skill and experience might perhaps render it unnecessary. We reply, that the sound in the hands of such persons, is an excessively dangerous instrument, and that if they cannot arrive at a knowledge of the disease in any other way, they will certainly fail to do so by means of this instrument, for the simple reason that he who is not capable of recognizing a flexion of the uterus by digital exploration will never, or almost never, be able to pass the extremity of a sound beyond the inflected portion.

Now what are the affections which may be confounded with the disease in question? Here, in the first place, we will mention the augmentation of volume due to organized exudations, and known under the name of **chronic engorgement.** This is often accompanied with a certain degree of anteversion or retroversion. It then happens that the finger perceives through the vaginal walls, before or behind the os tincæ, the inferior part of the body of the womb; and this tumor is liable to be mistaken for the inflected fundus of the organ. In paying attention to the following circumstances we can preclude this error without having recourse to the sound. In the first place, in engorgement the fundus of the uterus is ordinarily accessible to palpation above the symphysis pubis. Then the thickening of the uterine walls is rarely limited to the body of the organ; it extends also to the neck and even to the lips of the vaginal orifice. In these cases the finger will by the touch not find the excavation between the os tincæ and the body of the organ; it can ascend to some distance without perceiving any interruption in the tumor. Finally, if the body of the uterus be engorged and accessible to the touch through the bottom of the vagina, it will never yield to the pressure of the finger: it can never be balloted as in the case of inflected fundus it may be. There is only one case, in our opinion, where the sound can become necessary. It is when the engorgement is limited to the superior portion of the body, when the volume of the os tincæ

is not augmented, and when the finger cannot reach the length of the neck or the engorged part, but perceives only a portion of it through the bottom of the vagina. It then may happen that the space comprised between the tumor and the os tincæ may be taken for the angle of an inflexion. We only remember a very small number of such cases, and we confess that in these circumstances the sound will sometimes extricate us from embarrassment.

Certain fibrous tumors may also be taken for cases of flexion. This may occur when these bodies are of small volume, of the size of a pigeon's egg or a small apple, and are situated in the anterior or posterior wall of the uterus in such a manner as to be perceived by the vagina, before or behind the os tincæ. Still, the distinction will rarely be difficult. The fibroids will be recognized by their immobility, and from the fact that the finger can follow the uterine parenchyma from the os tincæ up the tumor without finding any place less resisting or forming a depression, as is the case with flexions. It has never happened to us to be obliged to have recourse to the sound in cases of this nature. Yet we have treated a considerable number of women affected with fibroids of the womb. Therefore, we think ourselves authorized here again to advise great restriction in the use of the uterine sound. If it is employed, it need be so only when a tumor which is situated before or behind the os tincæ cannot be easily reached with the index finger, and when in consequence the touch is insufficient to establish a precise diagnosis. This, however, will not happen, except in two well-marked cases: first, when the flexion is not very considerable, and is but a curve of the womb in an arc of a circle, the fundus not having descended sufficiently low to be accessible to the touch; and secondly, when a fibrous tumor is situated in the **superior** parts of the anterior or posterior wall. There is then ordinarily an increase in the volume of the uterus, which renders it accessible to abdominal palpation, and facilitates the diagnosis.

Finally, it is alleged that the introduction of the sound is of assistance in distinguishing cases of flexion from tumors formed before or behind the uterus by exudations into the peritoneum in the course of partial phlegmasia of this membrane. Here

we may at once exclude those cases where the effusion has taken place a little before the exploration, for the inflammatory phenomena which have preceded will suffice to prevent all error. The case is otherwise when the tumor is of long standing, or when the exuded matters are organized and formed into a solid mass. Still, we think that even in these cases it will be rarely necessary to have recourse to the sound. It should be remembered that these concretions never form a tumor as circumscribed and as rounded as the inflected fundus of the womb. They are spread more over the surface, and besides, the pressure of the finger does not displace them, and the touch generally provokes violent pains.

We will add, in closing, that the sound ought, in every case, to recognize a flexion in the following manner. At the moment when the extremity of the instrument passes the place of the flexion, the organ is replaced and resumes its normal position, so that it escapes from contact with the finger, and the tumor which was perceived through the vaginal walls suddenly disappears.

Progress and Termination.—Flexions are among the most protracted, and obstinate diseases of the womb. In spite of what many modern authors have said, we are persuaded that if what is called the powers of nature do not effect a cure, the malady will completely resist every form of treatment, whether medicinal or mechanical. For our part, we have never cured a flexion; when we have seen one disappear, it was not to our efforts that we could attribute this fortunate termination. And this does not appear astonishing when we attentively consider the causes and mode of development of this affection. Preceded and favored by a relaxation of the uterine parenchyma, it makes such slow and imperceptible progress, that it is not until it has attained a very considerable degree that it provokes symptoms sufficiently marked to be recognizable. Then the disease is constantly aggravated by the alterations of texture which occur to complicate it. According as the flexion increases, the uterine tissue of the concavity of the flexion grows thin and softens. By what means can a physician cause the anomalies of texture which we have described, to disappear?

Still, we do not mean to be understood that the patient is to be abandoned to her fate. An enlightened course of treatment may greatly ameliorate her condition and prevent, at least in part, the terrible consequences of the disease. The physician who, after having recognized a flexion, does not trouble himself about it, would render himself chargeable with gross negligence, for which the patient would have the right to hold him responsible. For he would see her condition daily growing worse in consequence of continual hæmorrhages, of the increase of the leucorrhœa, and the continually increasing pains which the alterations of the texture of the womb bring with them. It is clear that these immediate consequences of the local malady will sooner or later produce general exhaustion, impoverishment of the blood, and with it the multitude of serious symptoms produced by anæmia. Soon difficulties in the nutrition of the nervous system will be added—phenomena which we called **hysterical**, and which unfortunately many physicians do not always appreciate in the manner which, in the eyes of the patients, they deserve.

We scarcely need to add, that in well-marked flexion, the canal of the neck is always more or less impermeable, which opposes an insurmountable obstacle to conception. Still, there are exceptions, for we have already stated that flexion is one of the principal causes of frequent abortion. And we have known three women affected with well-marked flexions, who nevertheless conceived and bore children at full time. To two of these the pregnancy even brought a complete and durable cure of the uterine affection ; in the third case, on the contrary, a little after the delivery it made very rapid progress.

After what we have said, the reader will have seen that, if upon many points we cannot unite in the opinion of most modern authors, we do not on that account detract from the pathological importance of uterine flexions.

Treatment.—It was not till recently that the treatment of this malady began to be seriously thought of. Since the labors of French, English and German physicians have thrown more light upon the nature of the affection, the most various procedures have been proposed, so that the number of the modes of treatment is very considerable.

The fundamental idea, which is at the bottom of all these methods is, that it is necessary, by proper medical treatment, as well general as local, to attempt to get rid of the softening of the uterine walls, and then, in the second place, to straighten the bended organ, and to restore its normal direction by mechanical means.

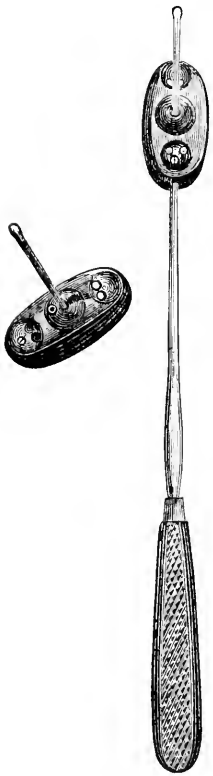

Fig. 24.—Simpson's uterine pessary.

Authors are generally agreed as to the first or medicinal part of the treatment. The second, however, has undergone the most varied modifications. Simpson, Kiwisch, Valleix, Mayer, Detschy, and many other savants, have prepared apparatus which, introduced into the cavity of the womb, has for its object the straightening and sustaining of the flexed organ. As these instruments are none of them strangers to any of our confrères, we will not give a detailed description of their construction. We will content ourselves with expressing our opinion as to their practical value, based upon a great number of observations. We should, however, state first of all, that we have only experimented with the instruments invented by Valleix, Kiwisch and Detschy (Figs. 25, 26, 27, 28). Still, we think we can prove by what follows, that we are entitled to express an opinion upon other apparatus more or less analogous to these.

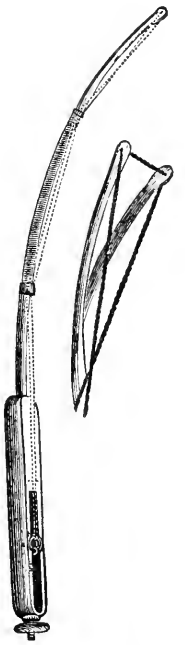

Fig. 25.—Kiwisch's uterine restorer.

After what we have observed in this connection, we are unable to give them our approbation. Their employment is,

in our opinion, not only dangerous and without result, but in very many cases, and in certain circumstances, it is impracticable and entirely impossible.

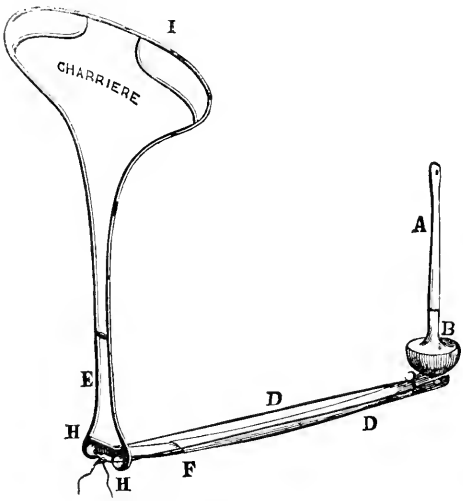

Fig. 26.—Valleix's uterine restorer.*

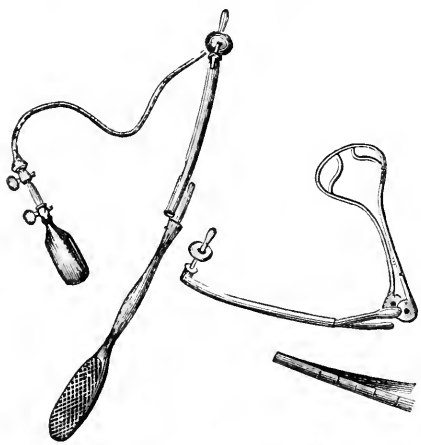

Fig. 27.—Modification of Valleix's pessary.

Numerous cases, published in the journals of the last few years, have proved that these instruments are not without danger. We have often ourselves observed this when, at each case of flexion that came before us, we were accustomed to use them. Their use may be followed by violent inflammation of the uterine tissue and of the adjacent portions of the peritoneum. In a case which we treated in 1851, the first introduction of the apparatus of Kiwisch provoked a peritonitis so intense that during several days we feared for the life of the patient. We have also observed on frequent occasions excessive and very painful uterine colics and violent hæmorrhages of the mucous membrane, which

* The uterine restorer of Valleix consists of a staff A, intended to penetrate into the uterine cavity. At its base is a metallic disc, four-fifths of an inch in diameter, and terminated below by two circular protuberances, between which should be placed the hollow disc of rubber, B. This first part of the apparatus is united by a spring joint with another staff made of metal, which, being intended to remain in

had been softened and rendered friable by the continuance of this instrument. Still, all these accidents would not have frightened us, and we should not have determined to discontinue the use of this apparatus, if we could have persuaded ourselves that its employment was truly of any durable utility, and favored the cure of the disease.

Unfortunately this is not the case. Having seen women subjecting themselves for months, with the greatest patience and perseverance, to such painful treatment: having seen them, during all this time, renouncing nearly all the pleasures of society to follow the directions laid down; and wearing daily, for many hours, the instrument which is to deliver them from all their ills: and having been a witness of so many sacrifices on the part of the patient, without, in any single case, a durable cure being obtained, we may well be permitted to doubt the efficacy of this treatment. May it be said that others have been more skillful or more fortunate than we! Favored by chance, we live in a town where, before us, Kiwisch, whom all Germany recognizes as one of the first gynecologists, practised a long time. It is natural that patients previously treated by

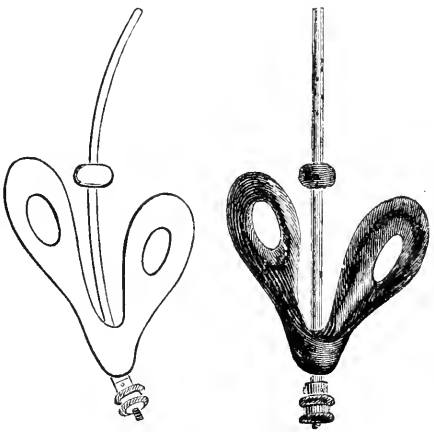

Fig. 28.—Detschy's supporter.

the vagina, has received the name of the vaginal staff, D. The spring C, situated at the joint of the disc with the vaginal staff, is arranged in such a manner that it seems to maintain these two parts bent at a right angle. The vaginal staff is hollow, to receive a solid staff, which is firmly fixed at a right angle to a plate destined to be placed upon the abdomen. The two distinct parts of which this apparatus is composed, are maintained united by the aid of a thread passed through a hole, F, made in the vaginal staff, near the joint. The thread CC, is attached to the plate E, which is to be fixed along the abdomen by means of two bands fastened to its superior portion, and forming a girdle; two other bands running under the thighs are attached to the lower part, near the point where the thread ought to be tied that unites the two portions of the instrument, HH.

him should often come to us. Twelve such patients, affected with flexions of the uterus, Kiwisch had made to wear, for a longer or shorter period, one of these instruments. When we came to examine them, the anomaly of the womb was still so marked that the slight efficacy of the treatment was clearly demonstrated. Other practitioners, equally enlightened, do not appear, in spite of their assertions, to have obtained better results; for we have had, up to the present, to treat a good number of women affected with flexions, who previously had had recourse to other physicians, and had worn, for a long time, one or the other of the instruments which we have named.

The results, then, are not much in favor of mechanical means. But we think, that even theoretically, this procedure can scarcely be defended. In fact, we cannot well comprehend how, by the introduction and continuance, more or less prolonged, of a sound or any kind of restorer, the thinness of the uterine walls, the atrophy of the muscular tissue, which always exists at the place of the flexion, can be made to disappear, when this anomaly is somewhat marked. If it be replied that it is from internal treatment that we are to obtain this result, we will answer, that, without being too skeptical, we must be allowed to doubt the possibility of any such pharmaceutical action. Some have thought that they were able to effectively overcome the partial or general softening, which is the first cause of the flexion, by the prolonged use of the cold douche, by the administration of ergot and its various preparations. Some have thought they could also effect a cure by means of intra-vaginal astringent injections, and cauterization of the internal surface of the uterus by nitrate of silver, hoping thereby to provoke contractions of the uterus, which, by repetition, might cause the laxity of tissue to disappear.

We are far from wishing to completely discredit the action of these different methods; but it is certainly too much to demand that we should believe that they can remove the extreme degree of softening, which always accompanies an old flexion. This result is still less likely to be obtained, if to the employment of these methods a procedure is added, which, by the almost constant irritation which it produces, must necessarily provoke a more considerable afflux of blood toward the

uterus, inducing hyperæmia and a greater imbibition of the elements which cannot but augment the softening, and thus paralyze the beneficial influences of the pharmaceutical means. These accidents are to be feared when restorers have been used for a long period; we have already endeavored to demonstrate this in previous pages. In the support of our opinion, we will mention, in addition, that we remember many cases where the use of the redressor sensibly increased the chronic engorgement of the uterus, augmented the size and weight of the fundus of the organ, and thus only aggravated the flexion.

Finally, to form a correct judgment of this important question, it is yet necessary to have regard to a circumstance of which we have already spoken. We have said that the fundus of the flexed womb is often retained and fixed to one of the walls of the pelvis by false membranes of cellular tissue, which are more or less thick, and are due to peritoneal exudations. In these cases it is completely impossible to restore the organ without violently rupturing those adhesions, or at least without dragging upon the peritoneum in a dangerous manner; and it would be, in our opinion, a grave and very reprehensible fault, with a knowledge of these adhesions, to apply any mechanical restorer.

We know very well that the defenders of the mechanical treatment of flexions simply oppose to all our objections the fortunate results which they claim to have obtained. We do not expect to convert many of them by what we have said. But, for our part, until we are by the autopsy persuaded to the contrary, we shall persist in an opinion which we think is based upon a sufficient number of observations. It is needless to add that the employment of restorers, which should continue many months, is often rendered impracticable, by the situation of the patient. In every case it is always sufficiently distressing and requires attentive care.

Contrary, then, to the majority of modern authors, we limit ourselves, in the treatment of flexions, to causing, as far as possible, the alterations of texture which complicate it to disappear, and simultaneously to combating the resulting accidents which appear in the remainder of the system.

When the disease is not of very long standing and is accom

panied simply by tumefaction with imbibition of the uterine parenchyma, the treatment will be directed toward the latter. The cold douche, cold hip-baths, vaginal injections, lavements of ergot given two or three times a week, will be found useful in these cases. It will only be in exceptional cases, when the blennorrhœa of the cervical mucous membrane may be very intense, that recourse need be had to cauterizations by means of a stick of nitrate of silver introduced into the neck. In this manner, at the end of six or eight weeks, we shall generally succeed in very much ameliorating the condition of the uterine parenchyma, in such a manner that the abundant menorrhagia and the leucorrhœa shall either completely disappear, or at least be greatly diminished. If this should not be the case, we advise recourse to a procedure, which may perhaps at first be thought to be very absurd, but which however has, on various occasions, rendered us most valuable services in menorrhagia; we refer to local blood-letting. Every week or two, three or four leeches should be applied to the os tincæ. The stasis of venous blood, which is the cause of the friability of the uterus, is thereby moderated; the circulation regulated, the absorption of the serous elements of the tissue diminished. Thus, the organ resumes in a little while more tonicity. We cannot too highly recommend this method, which numbers of times has served us in successfully combating a tendency of the uterus to hæmorrhage which had obstinately resisted every other mode of treatment.

These emissions of blood have produced also the best results, when, besides a flexion of long standing, the uterus is more or less engorged and indurated. Their action is seconded by the use of hip-baths and injections of natural or artificial marine waters; they should be taken twice a-day, and may be warm, if the flexion is not accompanied by profuse hæmorrhages, which in these circumstances are not uncommon; but should be cold, if the contrary is the case. Should the pecuniary circumstances of the patient admit, she may be sent during the summer months to take the baths at Kissingen, Kreuznach, Reichenhall, Ischl, etc.*

* We think it would be agreeable to readers to give here a comparative table of the different baths mentioned by the author in the course of this work, and of

It will be well, before the baths, to order the taking of some gentle purgative mineral water, for a period. This treatment is equally beneficial when the alterations of texture extend to the mucous membrane, and induce hypersecretion from it. Cauterizations of the cavity of the neck of the womb, by means of a stick of nitrate of silver, should, however, be frequently repeated. The cauterization of the mucous membrane of the interior of the body has also been proposed, as well as astringent injections into its cavity. We do not advise these, except when the introduction of the necessary instruments is easy, and excites neither pain nor too profuse a hæmorrhage. Generally, we do not have recourse to them, except certain symptoms from time to time make it presumable that there is an accumulation of secreted matters above the flexed portion. This occurrence will be recognized, when, after uterine colics, which are very painful, and of variable duration, quite a considerable quantity of an aqueous and very liquid mucus should suddenly flow out. After this evacuation, the fundus of the uterus which has been perceived through the vaginal cul-de-sac will, ordinarily, appear less voluminous than before.

When there is a considerable increase of the secretion of the mucous membrane of the neck, erosions and ulcerations are frequently met with at the external orifice. Frequently, the continued irritation which these parts undergo, and the congestive softening of the tissue of the organ, cause these affections to produce painful sensations and even profuse hæmorrhages. In these cases cauterizations with nitrate of silver are insufficient. The ulcerated surface easily bleeding, the nitrate cannot remain long enough in contact with it, as the blood

corresponding French mineral waters. The waters of Kreuznach, Manheim, Weisbaden, Hombourg, Kissingen, Baden-Baden, Wildbad, Gastein and Selters are **chlorureted soda** waters, like those of Neris, Balaruc, Luxeuil, Neiderbronn, Salins, etc Ems, Schlangenbad and Teplitz are **bicarbonated soda** waters, like Vichy, Mont-Dore, Saint-Alban, Montbrison, Chauteauneuf. The sulphate of soda forms the base of the waters of Carlsbad, Marienbad, Eger, and Franzensbad, which resemble those of Plombières and St. Gervais (Savoy). The **sulphate of magnesia** found at Sedlitz, Pullna, and Seidehütz, is also met with at Montmirail (Vaucluse). Finally, the **chalybeate waters** of Schwalbach, Pyrmont, Spa, Brückenau and Bochlet are analogous to those of Neyrac (Ardèche) Rennes, Passy, Auteuil, Versailles, Rouen, Luxeuil etc.—*Note by French translator.*

which flows does not allow it to act with sufficient energy. For this reason we prefer cauterizing it with a painter's brush dipped in a concentrated astringent solution, or else we expose the os tincæ by means of a glass speculum, and then pour upon it an ounce and a half of liquid, which may be left thus for a long time in contact with the diseased parts. We most frequently employ solutions of nitrate of silver of variable strength (more rarely of sulphate of zinc or of copper), the perchloride of iron, tincture of iodine diluted with water, and pyroligneous or acetic acids. We have often made the remark that, in certain cases, the prolonged use of many of these solutions has no result, while when another is chosen, the proposed end is attained in a comparatively short time.

When the flexion is complicated with an acute peritonitis, which is not rare, the treatment will be modified in consequence. The anæmic state of the patient often prevents abundant sanguineous evacuations.

It remains for us to examine two local symptoms which are the source of all sorts of torment for women affected with flexion of the womb. These are uterine colics and vesical tenesmus. Of all the means we have tried for the relief of the former, opiate liniments have appeared to us to be of most service. If there is no hæmorrhagic tendency, we may also prescribe tepid baths either partial or general.

Generally, the symptoms excited by the compression of the bladder, as well as the volume and weight of the uterus, diminish under the influence of the treatment indicated. Narcotics, taken internally, cataplasms and fomentations over the hypogastrium, the application of ointments, with opium, belladonna or chloroform over the region, will moderate the pains, and be very agreeable to the patient, and, if there is no contra-indication, hip-baths may be used, or tepid injections.

As for the employment of internal medication, we think it is of no efficacy against uterine disease proper. But there are certain secondary effects of these diseases which trouble the general system, and cause symptoms of anæmia and hysteria. To combat these, internal remedies are valuable, and in addition to proper regimen, iron here plays the first part. The indications and contra-indications which ought to direct the physi

cian in the choice of any particular preparation of iron are well known. We will only add that we can powerfully second the action of this remedy, by causing the patient to take at the same time, or afterwards, the waters of Schwalbach, of Pyrmont, of Franzensbad, of Bruckenau, or others; as well in the form of baths, as by drinking.

The physician should pay especial attention to the functions of the rectum. Defecation should always be regular and easy. The obstinate constipation which so often accompanies flexion, if it be allowed to continue, may not only much aggravate the disease itself, but may also induce various hæmorrhoidal troubles. It is obvious, that the losses of blood thus brought on, may exert the most deleterious influence upon the state of the patient.

Finally, it remains for us to mention an apparatus which has often been to us of great utility in diminishing the pains excited by flexions of the womb. We mean the **hypogastric bandage.** It strongly embraces the haunches and is furnished with a cushion which presses upon the abdomen immediately above the symphysis pubis, and thus presses back the intestines which fill the hypogastrium. We were able to appreciate the good effects of this bandage upon several of our patients who, without the advice of a physician, compressed the inferior part of the trunk by means of bandages, or simple drilling, and claimed to have found great relief therefrom.

It is not difficult to account for the salutary effect of this girdle. For the uterus, having its sensibility increased by alterations in its texture, will always be the seat of sharp pain, when forced to change its position. And it is liable to be pressed and drawn on every side, at each movement of the abdominal organs; hence, women who have a flexion, generally feel violent pains at every effort of the muscles of the belly, as in sneezing, in coughing, in lifting a burden, or in accomplishing the act of defecation. Sometimes even deep inspiration is painful. The girdle moderates these movements and saves the womb from too violent shocks. Hence its salutary action.

The cushion, which pushes back the intestines contained in the hypogastrium, fulfills, in anteflexion, a double purpose; First, it diminishes the pressure of the abdominal organs on the

fundus of the uterus, and thus removes, in part at least, one of the causes which most aggravate the disease. And secondly, the convolutions of the small intestines are pressed into the space between the womb and the rectum. Thus the neck and the lower portion of the body of the womb are forced downward and forward, and this movement aids in counteracting the anteversion which is so often complicated with anteflexion.

At the same time, the uterus becomes more firmly fixed and is enabled to resist the motions of the surrounding organs. In retroflexion the girdle should not be neglected. Here, however, its action is certainly not so favorable; and the pressure which it exerts may even, if it be too strong, increase the existing retroversion. But in spite of this, in two cases of retroflexion, we have obtained very good results from the hypogastric girdle. It relieves the patient by fixing the affected organ. Care must, however, be taken not to tighten it too much.

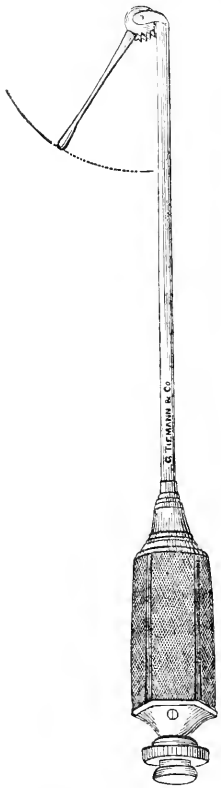

Fig. 29.—Gardner's manifold instrument.

In all cases, this mechanical mode of treatment is easy and not at all violent. We hope, therefore, that when others have given it a trial, its numerous advantages will be recognized and its employment will become more general.

Fig. 30.—Loop to manifold instrument.

[In the above, the author has entirely overlooked the very great difficulty often experienced, not only in first introducing the sound, but also in raising the uterus into its normal position. For this purpose we have, after much experimenting, perfected the instrument here presented, which is manifold in its applications. It consists of a long hollow staff through which runs a strong wire attached to a movable ball or button at the extremity, moved by a screw at the handle. To this ball at the extremity a small knife, caustic-holder, sound, etc., may be attached, render-

ing it a very serviceable instrument for a great variety of cases.

The method we adopt for the replacement of the unimpregnated everted uterus is as follows: The speculum being introduced as far as is necessary—the os is often so far thrown backward as to be quite unattainable by any ordinary means—by the loop, represented in the annexed cut, and capable of being attached to the manifold instrument by a screw, the vaginal neck of the uterus is easily hooked down and brought into view. The uterine sound, attached to this instrument and bent at any angle necessary, may then be carefully pressed into the uterus up to the ball, which prevents it from entering too far, and so injuring the internal mucous membrane during the subsequent manipulations, an accident which very frequently takes place from the careless or too harsh use of the ordinary sound, or the mechanical sound of Luer—and thereby causing not only serious subsequent hæmorrhages, but even dangerous metritis, peritonitis, etc. After being thus carefully introduced, by means of the screw at the extremity of the handle, the sound, and with it the uterus into which it is introduced, are easily raised to any desired position when not bound down by adhesions or the weight of superincumbent tumors, etc.

We may here mention that to this same instrument the intrauterine* ordinary caustic-holder, as well as knives and scarificators of various characters and sizes may be attached, thus authorizing the name of "manifold," which has been given to it.]

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* This instrument is described on p. 64.

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ART. VI.—DEPRESSION AND INVERSION OF THE WOMB.

PATHOLOGICAL ANATOMY.—By the name of **depression of the uterus** is distinguished a deformity such that the fundus of this organ loses its superior convexity, and presents a depression, goblet-shaped, and more or less deep. There is an **incomplete inversion** when the fundus of the uterus is depressed even to its orifice, or indeed when it appears outside of the external orifice, so long as it is still surrounded by the neck, which has retained its normal position. The **inversion** is **complete** when the entire body of the uterus, the mucous membrane being inverted, passes beyond the orifice and hangs in the vagina, or even in great part outside of the vulva.

In simply glancing at the alterations in the form and texture of the uterus, it is clear that the anomalies which are here in question, cannot exist except when the walls of the womb are sufficiently thin and relaxed to permit the inversion, or when the cavity of this organ is large enough for the part depressed or

everted to find sufficient room in it. These conditions indispensable for the development of the deformities which now occupy our attention, will be especially found, when after parturition the uterus does not possess its normal contractility. This explains why inversions of the uterus occur mostly during labor or a few hours afterward. The ligaments and the folds of the peritoneum, which fix the uterus, acquire during pregnancy such elasticity and development, that they become incapable of opposing sufficient resistance to depression or inversion when occurring in the course of retraction of the uterus. When the inversion is considerable, we sometimes find in the sac, formed by the inversion of the external surface of the uterus, not only the appendages of the womb, the fallopian tubes and ovaries, but also the contiguous portions of the uterine ligaments, the vesico-uterine ligaments, the fold of Douglass, and even sometimes a portion of the small intestines and of the peritoneum, with the posterior wall of the bladder and the anterior wall of the rectum. The reason of the relative infrequency of the inversion of the inferior portion of the body of the womb, in comparison with that of the fundus, is undoubtedly to be found in the fact that during pregnancy the folds of the peritoneum attached to the inferior aspect of the uterus are less dilated, while also they are less elastic in texture and are more closely bound to the neighboring organs.

In addition to the affections just described, we ordinarily find in cases where death soon follows the inversion, no other complications except the symptoms of general anæmia. If, however, the progress is slower, symptoms, more or less marked, of an inflammation of the peritoneum, of the uterus, of the bladder, etc., are also visible. If the inversion is of still longer standing—if it has existed for months, or perhaps indeed for years—the walls of the uterus then present the anatomical alterations attendant on chronic enlargement; the mucous membrane, which has been turned to the outside, is invested with a thick layer of pavement epithelium. It is often covered with erosions and considerable ulcerations. Sometimes, too, it adheres to a very considerable extent to the walls of the vagina. In the cavity formed by the external surface of the uterus are found the matters resulting from the exudation, already trans-

formed into connecting (cellular) tissue and intimately attached by membranous adhesions to the walls of the uterus and neighboring organs. Generally, in such cases, the changes in the position of bladder and rectum, which we have already mentioned, are also met with.

Etiology.—When we find after parturition such a relaxation of the walls of the uterus, that inversion is probable; and when, at the same time, we observe too strong an adherence of the placenta to the internal surface of the uterus, we should avoid too violent traction upon the cord, or not sufficiently careful attempts to detach artificially the placenta, by introducing the hand into the uterus, as without great care an inversion may be produced. The same thing might happen in a precipitate labor, when the woman has been delivered standing, and the infant falls violently out of the genital organs. The traction made by the umbilical cord upon the placenta, drags it with force into the cavity of the uterus, especially if the contraction of the abdominal muscles at the same time makes pressure on the external surface of the womb. We do not feel able to admit that in the course of the labor, or in the first hours after parturition, the sudden action of the abdominal pressure which accompanies sneezing, or a fit of coughing, or very quick movements, etc., could of itself suffice to produce an inversion, although many authors have maintained this opinion. We have, however, seen two cases in which a complete inversion was little by little developed, independently of labor, and in consequence of traction, exerted upon the fundus of the uterus by a polypus passing through the uterine orifice and the vagina, and pushing out beyond the vulva, until the fundus of the uterus itself appeared outside of the external genital organs.

Symptoms.—While in simple depressions of the fundus of the uterus, the morbid symptoms are limited to hæmorrhage, which is sometimes very violent, the patients experience, when the inversion is complete, especially if it is rapidly produced, a violent pain radiating from the uterus toward the sacrum and the groins. Often, at the same time, all the symptoms of a profound exhaustion of the functions of the nerves and the vessels are observed, such as repeated vomiting, syncope, violent chills, convulsive movements of various muscles, a peculiar

expression of pain and anguish in the features of the countenance, etc. The vessels ending at the point where the placenta was adherent, remaining open, there flows out a considerable quantity of blood; and if this is not promptly remedied, the patients succumb with all the symptoms of anæmia.

The symptoms are very different when the inversion is formed little by little in consequence of an anterior depression of the uterus. The phenomena resulting from the shock to the nervous system are here entirely absent, and the exit of the fundus uteri out of the os tincæ or the vulva, is accompanied by more or less hæmorrhage, repeated at unequal intervals by continual pains in urinating or in going to stool, by painful contractions of the uterus spreading toward the sacrum and the groins, by gastralgia, and the numerous troubles which are developed in the course of anæmia.

Diagnosis.—By palpation, some important symptoms of the disease which occupies our attention can often be recognized. After the expulsion of the fœtus, the uterus forms a spherical tumor, of the size of an infant's head, rising nearly six to eight inches above the symphysis pubis, and from which it can be easily recognized through the abdominal walls. If the summit of the uterus presents a depression in the form of a cup, as described above, this circumstance can ordinarily be easily perceived by palpation; but if there be a veritable inversion, the tumor formed by the uterus, and which is observed in the normal state above the pubis, will have completely disappeared, while by vaginal exploration we discover that a spheroidal body, more or less voluminous, projects through the os tincæ.

A little after the labor, it is scarcely possible to make a mistake in the diagnosis, however little experience the examiner may have. The adherence of the placenta to the inverted uterus might indeed make any one think he had before him nothing but the after-birth in its transit through the vagina, and thus he might be led into error. But an attentive examination of the hypogastrium will disclose the entire absence of the uterus, or, at least, the irregularity in its shape, and will preserve the physician from being deceived in this manner.

Neither is it easy immediately after labor to confound an inversion with a fibrous tumor escaping from the os tincæ; for the absence of the uterus from the hypogastrium, the sensibility of the tumor projecting from the uterine orifice, the presence of the placenta, or at least the traces of its insertion, as well as the possibility of its reduction, will not long permit any one to believe in the presence of a polypus. The distinction is sometimes more difficult when the inversion is already of long standing; and we ourselves know a case where a very skillful gynecologist took for a fibrous polypus a uterus which had for a long time been inverted, and was just within the vulva. He applied a ligature, and extirpated the tumor by means of a bistoury. It was not till he had more carefully examined the amputated part, that the error of diagnosis was recognized. But the manner by which any one may guard against such errors, will be discussed when we come to treat of polypi. We therefore refer our readers to that part of this work, where will also be exhibited the confusions which may take place between the inversion and prolapsus of the womb.

Prognosis.—Although the inversion of the uterus may be in itself a very serious accident, still, when the reduction has taken place in time, and with the necessary precaution, it generally terminates favorably; and those cases may be considered as exceptional where, after a sudden inversion of the womb, death occurs during the efforts at reduction, or just after this operation. But if the operation be not performed, or be unsuccessful, the everted portion often swells considerably, becoming the seat of a severe inflammation; and cases have been noted where it has fallen entirely off, in consequence of mortification.

Sometimes the swelling caused by the constriction disappears at the end of some few days, and the reduction, which at first was impossible, then succeeds without difficulty. In some unfortunate cases, the peritoneum participates in the inflammation of the womb. Hence arise divers troubles during the confinement, which eventuate sometimes in a fatal termination. In other equally exceptional cases, death is to be attributed to the strangulation of loops of intestines, which have penetrated into the inverted uterus. Another cause of death

may be hæmorrhage, which so frequently occurs in inversion of the womb.

After what has been said, it may be understood that inversions resulting from labor may remain for a long time. It is, indeed, by no means rare to meet with inveterate inversions, which scarcely incommode the persons affected by them. [Many years since we saw a woman upwards of eighty years old, who had an irreducible inversion for a score or two of years, which in nowise injured her health, or impeded locomotion. She was accustomed to climb over the paling of the workhouse where she lived, some twenty feet high, and walk many miles. The mucous membrane was changed in its character, and with the exception of slight abrasions and superficial ulcerations, there was little active disease present in the organ.] Generally, it is more difficult to reduce an inversion of long standing than one which is still recent. This is owing to the greater firmness of the walls of the uterus, and to the organic alterations which they undergo, as well as to adhesions by false membranes which are formed between the neighboring displaced organs. Still the operation sometimes succeeds after preparatory treatment designed to lessen the volume of the womb; or, at least, we may succeed in pushing back into the vagina the inverted portion and in retaining it by means of suitable apparatus. It may be easily inferred from what we have said upon the pathological anatomy of these affections, that irreducible inversions may often be the cause of leucorrhœa and obstinate hæmorrhage, as well as of very varied disorders in the functions of the bladder and intestines, and of different hysterical symptoms.

Treatment.—A prompt reduction of the depressed or inverted portion is the first indication. For experience has demonstrated that in proportion as less time may have elapsed after this accident, the reduction is more easy and more sure. To this end, after having emptied the bladder and rectum, the patient is placed upon the back, the hips elevated, and the thighs bent upon the body so that the contraction of the abdominal walls shall not offer any obstacle to the operation; chloroform should then be given unless a great degree of anæmia should prohibit its use.

In the case of a simple depression of the fundus of the uterus,

it is sufficient for its reduction to make slight pressure upon the depressed portion with the hand, introduced at first in the usual manner and then closed in the interior of the uterus. The hand should be left for some minutes within the uterus to provoke strong contraction of the walls of this organ, or indeed, if that be not sufficient, ergot may be given internally.

If at the time when we would wish to operate for the reduction, the placenta still adheres totally or partially at the place of the depression, it is always necessary to attempt to detach it before attempting the reduction, for otherwise, in so relaxed a state of the walls of the uterus, the removal of the afterbirth might increase the inversion.

The difficulties are ordinarily much greater when the inversion is complete and they are all the more considerable as the constriction formed by the inferior segment of the uterus is stronger, as the organ itself is more voluminous, and as the time elapsed since the accident is longer. The special characteristics of the malady will decide whether, in a given case, it is best to effect the reduction by making continuous pressure upon the lowest portion of the tumor, or whether it is best to seize the entire tumor with the hand and push it up through the uterine orifice while pressing it lightly and first of all reducing, in a natural way, the lowest inverted portion.

When the spasmodic contraction of the neck around the inverted part prevents the reduction (which will rarely be the case if chloroform is abundantly employed), it is necessary before making new attempts at reduction to seek to overcome the contraction by means of large doses of opium, or by tepid injections into the vagina, if at least there is no fear of hæmorrhage. If the strangling be formed by the external orifice and we reach it by the touch, we must effect its dilatation by means of some incisions in the border of the orifice, and if the inflammation, the tumefaction of the inverted portion, renders the reduction difficult, we should endeavor to moderate these symptoms by applying ice over the tumor, and by scarifying it, or indeed by a general bleeding. In cases where, in spite of numerous trials, the reduction cannot be accomplished, we may endeavor to apply a progressive and continued compres-

sion by means of a suspensory bandage which may be tightened more and more, continually. In a similar case Borggreve employed a **pistil** eight and a half inches long, and terminated by an oval button which he gently thrust into the inverted portion of the uterus, then fastened the whole with a T bandage by means of which he made gradually increasing pressure, and the third day after the application of the apparatus the uterus had regained its normal situation. [An instance has come to our knowledge where, in consequence of some such attempt, the button-end alluded to entered through the relaxed os tincæ, which then firmly closed and prevented its withdrawal. The gentleman having the case in charge proposed dividing the cervix to remove it, to which procedure we objected, saying that as it entered by firm and persistent pressure it would return in the same manner, and advised that one end of an elastic rubber band should be tied to it while the other was fastened to the bed-post. After several hours this plan succeeded.]

In cases of chronic inversion of the uterus, it is ordinarily necessary to precede any attempt at reduction by treatment intended to get rid first of any pathological alterations which the womb may present. For the proper treatment we may refer to the chapter on chronic engorgement. When a voluminous polypus is the cause of the inversion it is always necessary to remove it before attempting the reduction. But if these attempts are fruitless, and the reduction is impossible, we ought always to attempt to push into the vagina the portion of the uterus appearing opposite to the vulva, and to retain it there by means of proper apparatus (T bandages, supporters, etc.,) in order to protect it against external influences.

Some authors have proposed and even performed the extirpation of the inverted uterus, either by the knife or the ligature, but it is certainly one of the most hazardous and dangerous operations, and could not be justified except when the inverted uterus is the seat of continual hæmorrhage, which endangers the life of the patient, or of cancerous infiltration, as sometimes happens.

Finally, we should mention that divers instruments have been invented which are introduced into the womb to prevent a

new depression when the reduction has been once accomplished. Persuaded that the strong contractions of the uterus are the only preservative against a relapse, and in conformity with the principle that the physician ought always by appropriate remedies, to seek to sustain the efforts of nature, we think that in some cases satisfactory results may be obtained from the introduction of a bag of vulcanized rubber which should be filled with cold water, and which may, by means of a stop-cock, be emptied of its contents according as the uterus diminishes in volume in the course of vigorous contractions. In all cases an apparatus of this character will be always preferable to the bladder of an animal furnished with a tube of caoutchouc, as recommended by Wellenbergh.

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Art. VII.—Displacement of the Womb.

§ 1. *Settling down and Prolapsus.*

In cases of simple **settling down,** the uterus occupies in the interior of the cavity of the pelvis a lower position than in the normal state, without, however, arriving as far as the vulva, while in **prolapsus** this organ either partially or entirely passes beyond the vulva. In the first case it may be called a **complete** prolapsus, and in the second it is **incomplete.**

Pathological Anatomy.—A prolapsus of the womb existing for a long time is always recognized at the autopsy by various anatomical changes in the uterus and its appendages. Immediately, by a simple inspection of the genital organs, we discover between the lips of the vulva a bluish-red tumor, more or less easily reducible, at the inferior part of which we recognize, under the form of a transverse fissure, the gaping orifice of the uterus. But if at the moment of inspection the uterus does not pass through the vulva, the extraordinary space which separates

the two lips of the vulva, and the possibility of seeing the tumefied and livid walls of the vagina, are evidence of the displacement which existed during life. We can, indeed, often, by making pressure on the hypogastrium, push out of the vulva the uterus situated in the cavity of the pelvis. This always succeeds when the abdominal cavity is opened so that the pressure acts directly upon the top of the uterus.

After opening the abdomen, one is struck by the extraordinary depth of the pelvic cavity, resulting from the descent of the uterus with the broad ligaments and the fold of Douglass. We can ordinarily satisfy ourselves at the same time as to the extraordinary tension of some, if not of the whole, of the ligaments which fix the uterus. As a complete prolapsus always gives rise to trouble in the circulation of the uterus or its appendages, we may also, at the autopsy, prove the existence of hyperæmia of these parts from the veins being still dilated and gorged with blood, and often from the livid or slate-grey color of some or all of the organs of the pelvis.

The extraordinary tension of the uterine ligaments, which we have mentioned, may be immediately stopped by endeavoring to restore the descended organ within the vulva; and the ligaments of the uterus have little by little undergone such stretching that we can push up the uterus in the pelvic canal one or two inches beyond its normal position. This mobility of the uterus does not disappear or diminish, except when in the course of continual hyperæmia and of the resulting exudations, membranous adhesions, more or less strong, are formed, which retain the organ in a fixed position.

If from the cavity of the pelvis we remove all together the uterus, the vagina, the round and broad ligaments, the bladder and the rectum, we are immediately struck with the magnitude and breadth of the womb, and with the relaxation and small elasticity of the vagina. If we open the latter organ in the direction of its length, we shall perceive that the rugæ and furrows met with in the normal state have almost entirely disappeared. The surface of the vagina is ordinarily smooth, and often livid, and, in severe cases of long standing, it is very dry, and is covered with a thick layer of pavement epithelium, which gives the mucous membrane the appearance of epidermis.

The vaginal portion, ordinarily hypertrophied, often hardened, but sometimes also much tumefied and softened, shows a discoloration of a bluish-red or a slate-grey. Around the orifice it is deprived of its epithelium, and covered with erosions and ulcerations more or less deep. Often, after a long duration of the disease, there is a true inversion of the neck. The orifice at first dilates insensibly, and its borders form a circle 1 to 1½ inches in diameter, through which the neck is everted in such a manner that the mucous membrane covered with the glairy mucosity peculiar to the neck forms after death, a bluish-red ring around the orifice, which leads to the cavity of the womb. It is easy to reduce this inversion of the neck when the body of the uterus is seized with one hand, while with the other we endeavor to draw the inverted borders of the os tincæ together.

Then, if the body of the uterus is opened with scissors, a considerable hypertrophy of the parenchyma of this organ is observed, and an attentive examination demonstrates here the same pathological alterations which we shall hereafter describe in speaking of chronic engorgement of the womb. The cavity itself is always considerably dilated, especially in its longest diameter, and the mucous membrane shows all the characteristics of chronic catarrh.

The bladder and the rectum are, among the neighboring organs, those which are the most deformed and displaced by prolapsus. But as these changes are more easily demonstrated during life than at the autopsy, we will refer our readers to the description we shall give in treating of symptoms, and will only add here that the troubles of circulation, caused by the deviations of the uterus, extend also to the bladder and the rectum, where a hyperæmia and a hypersecretion of the mucous membrane is often met with, and it is not rare to observe the varicose dilatation of the hæmorrhoidal veins.

Symptoms.—The fall of the womb is developed little by little, in consequence of an interior depression of this organ, or, indeed, it takes place suddenly from some violent cause, either interior or exterior. In the first case, the patients complain for a long time, sometimes for months or years, of a painful feeling of tension about the sacrum and the groins, and of a continual

or remittent pressure in the abdomen, as if a voluminous mass was being pressed out of the vulva. They are often tormented with tenesmus of the bladder, with dysuria and obstinate constipation, symptoms which are constantly increasing in intensity, and attain a degree insupportable to the patient at those times when the uterus becomes more voluminous, tumefied, and weighty, in consequence of the menstrual congestion. In the majority of patients, sympathetic symptoms in the direction of the digestive organs are also met with, such as twinges in the epigastrium, cardialgic pains, meteorismal swellings of the intestines, etc. The alimentation being no longer sufficient, disorders in the functions of the nervous system supervene, inducing all the various symptoms of hysteria.

The malady thus continues for a certain time. Then, without any exterior cause, there is suddenly seen in the vulva a round or oval tumor, ordinarily formed by the interior wall of the vagina. It is painful, and from the size of a nut, it increases very rapidly for some weeks, and as it augments, it ordinarily becomes more compact and firm. At this epoch, the neck of the uterus has already passed the vulva, and, if recourse be not had to proper treatment, or if the patient is forced to perform laborious work, calling into frequent activity the abdominal pressure, the uterus and the vagina progress outward continually toward the vulva, and when their walls are considerably hypertrophied, they may form a tumor as large as the fist.

This tumor generally presents to the touch a doughy consistence, and it is only by exerting a stronger pressure that we discover the compact tissue of the uterus buried in the centre of the tumor. The tumor often increases many times in size in the course of a day ; it is then more distended, especially in its anterior portion, where sometimes even pulsations are recognized. Similar symptoms render it extremely probable that the fundus and the posterior wall of the bladder have, in consequence of their intimate connection with the uterus, undergone a displacement backward and downward, in such a manner that a part of the bladder is found inclosed in the pocket formed in front of the vulva by the anterior wall of the vagina, an accident which is commonly designated by the name

of vaginal cystocele. In such cases micturition is often painful, and sometimes even it is not possible, except when the patient has with the fingers pushed back into the pelvis, and retained in this position, the tumor situated in front of the vulva. Little by little the portion of the wall of the bladder directly behind the neck of this organ undergoes a depression; it thus forms a furrow, in which, by reason of its dependent position, the urine is collected and decomposes; this irritates the mucous membrane, and often gives rise to a catarrh, or even to a croup-like inflammation, which extends over all the surface of the mucous membrane of the bladder and the urethra. This displacement of the bladder is recognized with certainty by introducing a male catheter considerably bent; in fact, when we wish to introduce it with the concavity upward, an obstacle is generally met with, while the catheter enters very easily when the concavity is turned downward and backward. The point of the instrument can then be perceived upon some spot on the anterior part of the tumor situated in front of the vulva.

When the prolapsus of the vagina is very considerable, it often drags the anterior wall of the rectum considerably forward, and thus gives rise to a dilatation of the part of this intestine situated in front of the sphincter ani; this dilatation is easily recognized by introducing a finger in the rectum. Sometimes even the vaginal touch demonstrates the presence of this dilatation, when, after having previously caused the evacuation of the fæces, we still find in the lower part of the rectum, hardened, globular fæcal matters pushing forward the posterior wall of the vagina. Sometimes a prolapsus of the rectum accompanies prolapsus of the womb, especially in aged women with whom the usual disappearance of the fat filling the cavity of the pelvis, the relaxation of the aponeuroses, and particularly of the sphincter ani, favor the descent of the rectum.

The tumor situated in front of the vulva is ordinarily rose-colored or livid; when the malady has lasted for some time, and when the tumor has long been exposed to the influence of the air, it is quite dry, and the thin mucous membrane resembles parchment. The inferior part of the tumor is formed

by the neck of the uterus, the internal surface of which is often turned outward as we have above indicated, in such a manner that we find around the orifice of the uterus a circle, whose diameter sometimes attains to one to two inches, and is noticeable by a coloration of a lively red, and by a humid and viscous surface.

If the uterus remains long out of the vulva, it is exposed to injurious influence from the atmospheric air, from the friction of the thighs and clothing, and especially from the flow of urine, which continually moistens the tumor. Hence, we frequently find, over the whole surface of the tumor, and particularly upon the inverted mucous membrane of the neck, ulcerations and a croupy inflammation, which, if the proper treatment of it is neglected, may lead to mortification of some portions of the vagina and uterus. We have ourselves observed a case in which a gangrenous ulcer of the size of a half-dollar, situated at the anterior part of the prolapsus of the vagina, perforated the bladder inclosed in the tumor, and was thus the cause of an incurable vesico-vaginal fistula. In prolapsus of the uterus, the mucous membrane of this organ is almost always the seat of a considerable hypersecretion, which is recognizable by a discharge which is mucous, puriform and sometimes fetid and corrosive. Ordinarily, prolapsus is the cause of various troubles of menstruation; when the walls of the uterus are engorged, the menstruation is generally defective in quantity, or there is even complete amenorrhœa, while, when the tissue and mucous membrane of the uterus are softened and relaxed, and the circulation is restrained in the vessels of the pelvis, the menstruation is very abundant, more frequent than ordinary; indeed, we sometimes meet with undoubted menorrhagia.

In consequence of the alterations of tissue, the chronic catarrh of the mucous membrane of the uterus, which often extends to that of the Fallopian tubes, the displacement of these latter organs and of the ovaries, which often accompany the falling of the womb, a great number of the women affected with this disorder are unable to conceive. On the other side, experience has demonstrated that, in the absence of these anomalies of the uterus and its appendages, the lower position

of the womb, and the extraordinary dilatation of the cavity of the neck, favor the introduction of the seminal fluid, and thereby render conception more probable.

When the prolapsus has suddenly taken place—as sometimes occurs in lifting a heavy burden, in a violent fit of coughing, in violently straining at stool, etc.—the sudden displacement of the womb is ordinarily accompanied by an intense pain about the sacrum and the two inguinal regions, and more or less marked nervous symptoms, as, for example, syncope, violent vomitings, intense cardialgic pains, etc. It sometimes happens, indeed, that the sudden tension of the folds of the peritoneum which attach the uterus to the walls of the pelvis, give rise to peritonitis, which by the violent fever and considerable exudation which sometimes accompanies it, may jeopardize the life of the patient.

Progress and Prognosis.—The descent of the womb is not exactly a fatal disease, though it is generally incurable, very painful for the patients affected with it, and if it is neglected, or a proper treatment is not followed, it constantly increases, and at last completely undermines the health and deranges the functions both of the nearer and more remote organs.

In such circumstances, the tumor which is situated in front of the vulva, and is at first about the size of a nut, constantly enlarges, and may even attain the size of a man's fist. Little by little we can perceive, by the side of the primary disease, displacements of the posterior wall of the bladder and of the anterior wall of the rectum, as we have above described, and sometimes the sphincter ani presents a relaxation like that of the muscular coat of the inferior portion of the rectum, which peculiarly facilitates the formation of a prolapsus of this intestine. The tension which the uterus exerts upon the round ligaments is often the cause of a dilatation of the inguinal canal, in consequence of which an inguinal hernia is developed on one side, or sometimes on both. It has, indeed, been universally recognized that the general relaxation of the tissues, which in many women seems to be the predisposing cause of the falling of the womb, favors also the formation of abdominal and umbilical hernia. Thus, we treated, in 1850, a Jewess, 65 years of age, who, besides a complete prolapsus of

the uterus and vagina, also presented in the linea alba an eventration larger than the fist, and was also suffering from an inguinal hernia of the right side, a crural hernia of the left side, and a prolapsus of the rectum about the size of the fist.

We have already described, under the head of symptoms, the pernicious influence which the disease in question exerts upon the whole organism.

We have sometimes seen **nature** bring about a complete and durable **cure** of the disease. But these are exceptional cases. We have never observed such a result, except in cases where, in consequence of peritonitis supervening during confinement, peritoneal adhesions have been formed between the uterus and different elevated points of the abdominal or pelvic walls, or else when a vaginitis, also puerperal, has produced, by cicatrization, a contraction and narrowing of the vaginal canal. We cannot regard as natural cures those cases in which the fall of the uterus has been permanently reduced by making the patients wear, during a long time, irritating pessaries. The reduction has not here taken place until after an ulcerative inflammation of the walls of the vagina, terminating in cicatrization.

The results which, in this disease, we may expect from pharmaceutical means and from extolled operations, are very rarely satisfactory, and we should in general be content to support the uterus by means of a pessary as little troublesome as possible for the patient, to prevent the consequent alterations of the tissue of the womb, and to combat the adverse influences which the fall of the womb exerts upon the constitution of patients.

Etiology.—The most frequent cause of the fall of the womb is the relaxation of the ligaments designed to fix this organ. And this relaxation is very much favored by the displacements and the pathological alterations which the organs of the pelvis undergo during pregnancy. The lengthening of the round ligaments, the anterior, posterior and lateral cul-de-sacs, as well as the dilatation of the vagina, which, commencing during pregnancy, attains its highest degree during the accouchment, are often such that it is, in very many cases, impossible that these organs should resume during confinement their normal position. It happens, therefore, that when, after the

puerperal period, the retraction of the uterus is completed, this organ does not find in the elongated and relaxed ligaments, or in the vaginal walls, deprived of their natural tonicity, a point of support sufficient to maintain it in its normal position. If any cause pushes the uterus from above downward, this in its turn pushes the yielding walls of the vagina, and descends continually lower toward the inferior strait of the pelvis. Such a prolapsus of the uterus may happen after a single labor; but without doubt, it is much more to be feared after repeated labors, especially when they occur at intervals comparatively small. But the danger is very much greater when a parturient woman, whose uterus is much larger and heavier than in the normal state, undertakes domestic labors which demand a continual and energetic contraction of the abdominal muscles; when she tightly laces herself, thus pushing the intestines into the pelvic cavity; or, indeed, when she neglects the necessary precautions and exposes herself to any cause whatever favoring the development of prolapsus of the uterus. It may be inferred from what we have said why this accident is much more frequent among poor women, unable to take proper care of themselves during their parturient state, than among persons belonging to the opulent classes of society.

Another cause of prolapsus of the womb is found in ruptures of the perineum, produced by parturition, when they are not completely cured. If the rupture is considerable, the posterior wall of the vagina has no point of support, it descends in front of the vulva, drags down the inferior portion of the vagina, and with it the uterus, the neck of which is soon directed backward, while the body is leaning forward, in such a manner that the posterior surface of the uterus now directed against the abdominal cavity, affords a convenient prop to all the pressure acting from above downward. The summit of the uterus continually descends lower, and there results from this anteversion a progressive dilatation of the posterior peritoneal cul-de-sac. The anteversion constantly increases, and the uterus at last depresses the anterior wall of the vagina and the posterior wall of the bladder. At last the womb is no longer in any fixed position in the pelvis, and it is not astonishing to see it escape from the vulva at the end of a longer or shorter time

after the occurrence of the rupture of the perineum. We have treated 114 patients suffering from prolapsus—99 were mothers, and the remaining 15, as we certainly ascertained, had never been parturient. Among these last was a young girl, sixteen years of age, whose virginity was already lost, with whom the rupture of the perineum had happened all of a sudden, by lifting a heavy basket filled with wet linen. The narrowness of the vulva, the considerable tonicity of the walls of the vagina would, in this case, make it probable that there was an extraordinary length or elasticity of the uterine ligaments. In the other cases, where the women had also not been confined, the cause of the disease was always a considerable relaxation of the walls of the vagina in consequence of a long continued leucorrhœa, or an excess of coitus, or else the uterus was displaced in consequence of a prolonged pressure acting from above downward. The cause of this pressure was sometimes a considerable accumulation of liquid in the abdominal cavity, or a voluminous ovarian tumor, almost completely filling the abdomen and descending into the pelvis, where it was wedged in. It may also occur when, in consequence of a relaxation of the vagina, there is a predisposition to prolapsus, the bladder, too long filled to repletion, gives rise to this accident. For, on the one hand, the distended bladder depresses the anterior wall of the vagina; and on the other, the vagina itself, and the uterus, which yields to the same pressure, drags down the bladder. Thus a depression, to a greater or less degree, of the anterior wall of the vagina ordinarily precedes prolapsus of the womb.

After what has been said, we may conclude that the predisposing causes suffice in themselves to produce little by little the fall of the womb, but that very frequently exterior causes second this action. There are especially various traumatic causes—blows upon the belly; the violent shock from a fall upon the breech; sudden efforts of the abdominal muscles, in lifting or carrying heavy loads, in a violent fit of coughing, or in straining with great force to have a stool after a prolonged constipation. We might also cite a great number of similar occasional causes, all of which have the same result; that is to say, they press the

uterus with more or less force and quickness toward the inferior strait of the pelvis.

Diagnosis.—Prolapsus of the womb is a disease of such distinct characteristics, that the danger is almost precluded of confounding it with any other malady; if, at least, the examination be made with any care. A mistake may, however, occur if the malady be **hypertrophy of the vaginal portion.** If the abnormal growth is of considerable extent, the inferior portion of the neck may pass through the vulva, just as in a case of prolapsus. Referring the detailed description of this disease to another page of this volume, we will only mention here that the tumor formed by hypertrophy of the neck of the womb, in front of the vulva, can never be reduced; that it generally possesses great compactness of tissue, and that it is not accompanied by a displacement of the walls of the vagina, so that the index finger can penetrate very deeply by the side of the hypertrophied cervix without reaching the bottom of the vagina. By rectal exploration, the uterus is found to be in its normal position; and as a considerable hypertrophy of the neck is ordinarily accompanied by a dilatation of the body of the uterus, resulting from a chronic engorgement, it will be possible, through the abdominal walls, to perceive this organ above the symphysis pubis.

To distinguish prolapsus of the womb from complete **inversion,** it is sufficient to remember that in the first of these diseases the os tincæ is always found at the inferior part of the tumor, while in inversion, the lips of the os surround the pedicle of the tumor, and are still situated in the pelvis.

A large **fibrous polypus** projecting through the vulva is distinguished from prolapsus of the womb by the following signs: 1, by its more compact consistence; 2, the absence of a uterine orifice at its inferior portion; 3, the almost constant possibility of discovering, higher or lower in the pelvis, the real os tincæ surrounding the pedicle; 4, the absence of displacement of the walls of the vagina; and 5, the hypertrophied condition of the body of the uterus, which is usually recognized by abdominal palpation.

Treatment.—The limits of this work do not permit us to

describe all the methods proposed for the treatment of prolapsus. We shall be content with mentioning the procedures which have rendered the most important service in the treatment of this unfortunately frequent malady, and shall pronounce our opinion upon certain methods lately proposed, some of which have found numerous partisans.

The first object in treatment is to reduce the displaced organ and retain it in the interior of the pelvis. The reduction is generally easy when the displacement does not result from a tumor immediately pressing upon the uterus and when the volume of the organ is not considerably augmented by the resulting inflammation. It sometimes happens, indeed, when the prolapsus is not very considerable, that the reduction has taken place spontaneously by the contractions of the walls of the vagina, especially when the patient has remained recumbent on the back. It was thus that we once saw the spontaneous reduction before our eyes of a tumor as large as the fist, upon which we had by chance poured cold water.

In performing artificial reduction, we separate the labia with one hand and with three or four fingers of the other we seize the lower part of the tumor, and push it gently into the pelvis, following it with one or two fingers until the organ has retaken nearly its normal position. It is always well during the attempts at reduction to maintain the patient lying upon the back with the pelvis slightly elevated.

If the inflammation and engorgement of the uterus render the reduction too painful or even impossible, it is necessary first to apply such remedies as are capable of diminishing the sensibility and tumefaction of the womb. Thus, leeches repeatedly applied, hip baths and compresses, first warm and then cold, are found of service.

We make no exception to the rule above laid down to commence the treatment by reduction, except when erosions or ulcerations of the cervix or of the vagina necessitate the application of topical remedies. For, first, it is easier to cleanse the parts—a process indispensable for the cure—when the ulcerated surface is exposed; and, secondly, we have found that cauterizations, which here can rarely be dispensed with, conduce much more quickly to the desired result.

As soon as the reduction of the uterus is effected, the next object is to retain it in its new position. For this purpose, different apparatus has been invented, known under the names of pessaries and supporters. But from frequent experience in such matters, we are convinced that none of these instruments are equally applicable in all cases, and that one will never be invented capable of fulfilling all these necessary conditions. One of the first reasons is the different degrees of sensibility possessed by the affected parts in different individuals. In fact, while some tolerate without any inconvenience very hard instruments compressing and considerably dilating the walls of the vagina, the introduction of a soft sponge dipped in oil is insupportable to others. Another reason is, that, in constructing instruments of this sort, the attention is ordinarily fixed on one only of the numerous causes of prolapsus, so that in cases where the malady proceeds from any other cause, the apparatus is unsuitable.

On this account we make it a rule never to lose sight of these two considerations in choosing an apparatus for the support of the uterus, and never to adopt one which would render difficult or impossible the use of those topical remedies which are so necessary to a permanent cure.

In cases where the displacement is not considerable, where the hypertrophy of the uterus does not render the organ too heavy, and when the vulva is not too much enlarged, as, for example, in ruptures of the perineum, it is sufficient for the retention of the uterus, to introduce a soft sponge into the vagina about $2\frac{3}{4}$ inches long, cut into a conical shape and dipped in oil. The large extremity, presenting a diameter of nearly $1\frac{1}{2}$ inches, lies toward the bottom of the vagina, while to the inferior extremity is attached a ribbon to facilitate its extraction. When the genital organs are very sensitive, such a sponge may be very inconvenient; for if its lower extremity is little by little pushed out of the vulva, it causes a painful chafing of the internal surface of the lips. To remedy this inconvenience, it will be well to apply a T bandage of which the inferior strip passing between the limbs should have, at the place where it is in contact with the vulva, a soft, supple pad, $4\frac{1}{3}$ inches long by $2\frac{3}{4}$ inches wide, covered with a waxed cloth. When the patient has thus worn

the sponge from eight to fifteen days, we may then attempt to fill it with some astringent, such as a solution of alum, tannin or perchloride of iron.

If the prolapsus be considerable, the uterus heavy and voluminous, and if there coexist a rupture of the perineum, the sponge will not suffice to sustain the uterus, and we must resort to more solid means of support. The apparatus of Roser, with

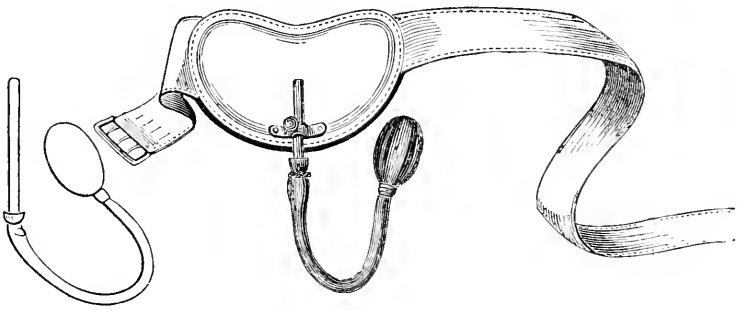

Fig. 81.—Roser's supporter, modified by Scanzoni.

the modification which we have made in it, answers perfectly in the following cases: first, when the prolapsus of the uterus has been preceded by a prolapsus of the anterior wall of the vagina; secondly, when this anterior wall of the vagina, at the time of treatment, is more relaxed than the posterior wall; and finally, when a vaginal cystocele complicates the prolapsus of the womb. It consists of a tin plate covered with leather, shaped like a kidney, $5\frac{1}{2}$ inches long and $3\frac{1}{2}$ inches wide. Upon its anterior surface is a staple of steel, in which is adjusted, by means of a screw, the extremity of the curved stem intended to be introduced into the vagina. This stem is also made of steel, and at a point $2\frac{1}{10}$ inches above the extremity fitted into the staple, is furnished with a hinge which allows free movement from right to left. From that point the branch descends about $2\frac{1}{10}$ inches, when it bends backward, and then upward and forward, describing the segment of a circle in such a manner that the ascending branch, also about $2\frac{1}{10}$ inches long, is distant $2\frac{1}{10}$ inches from the descending branch at the place where the two are furthest from each other. The whole stem constitutes a

moderately strong steel spring a quarter of an inch broad, inclosed throughout its whole length in a tube of vulcanized rubber and terminated by a button of ebony, $1\frac{1}{2}$ inches long $1\frac{1}{4}$ inches broad and $\frac{5}{8}$ of an inch thick. By means of the screw, this spring can be elevated or depressed at pleasure. To the right and left of this plate, which is intended to rest upon the mons veneris, is placed a broad thread ribbon which goes around the hips and is tightened by a buckle. To prevent this plate from mounting up toward the abdomen, two straight ribbons may be added, passing between the legs on each side of the vulva and attached behind to the girdle surrounding the hips. For some patients to whom these ribbons were inconvenient, we have substituted for them a large band, starting from the plate covering the descending branch and attached to the same place as the ribbons.

The intention of this apparatus is to press the anterior wall of the relaxed and descending vagina, and to retain it against the symphysis pubis. Thus, by the elasticity of this steel stem, both the vagina and the uterus, which were alike displaced, are maintained in a position as normal as possible. Ordinarily, this apparatus perfectly fulfills this intention when its application is not prevented by an excessive sensibility of the genital organs.

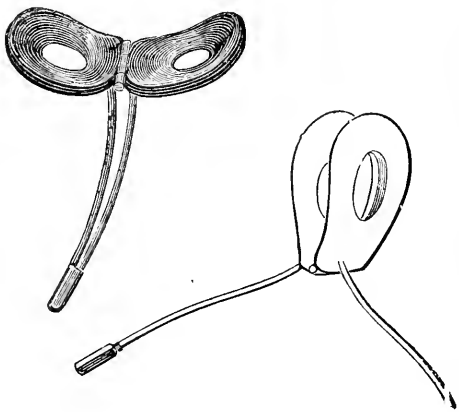

Fig. 82.—Zwanck's supporter.

But this supporter is perfectly useless when the relaxation of the vagina is general, or when, especially, it is not the anterior, but the posterior vaginal wall which participates in the descent of the uterus. In such a case we had better seek to sustain the uterus by opposing an obstacle to its descent, in separating the lateral walls of the vagina from one another, and thus stretching, from right to left, the fundus of this cavity

The ordinary round or oval pessaries, which partly effect this end, have the inconvenience of dilating at the same time the posterior and anterior walls of the vagina, of being difficult to remove, and of often exciting a disagreeable pressure on the bladder and rectum.

It is therefore necessary, in such circumstances, to prefer pessaries which exert the pressure principally upon the sides of the vagina, as, for example, those of Zwanck, Schilling, Breslau, etc.

We have many times had occasion to use the supporter of Zwanck, and we can recommend it for this class of cases. It consists of two oval plates of tin, pierced in the centre, united at one extremity by a hinge, and covered with a thick layer of lacquer. Upon the exterior surface of the plates, on each side of the hinge, a metallic stem is placed, about $2\frac{1}{10}$ inches in length, adapted in such a manner that when the extremities of each stem are brought together, the free extremities of the two plates are separated. They are retained in this position by means of a sheath screwing upon the end of one of the stems, and so adapted as that when it is worked toward the plate, it shall seize the extremity of the other stem, and hold it immovable. This apparatus, which patients ordinarily tolerate with ease, has also the advantage of being removed and replaced without difficulty by the patients themselves. And we have found it useful in all cases, except the three following: First, when, on account of a deep rupture of the perineum, it has not a sufficient point of support. Secondly, when the uterus has attained a too considerable size and weight, and exerts in consequence too great a pressure from above downward; for in this latter case the walls of the vagina are forcibly dragged from without inward, and bend little by little in the same direction the plates of the apparatus, thus facilitating its exit and fall. Thirdly, it does not serve for those patients with whom the dilatation and relaxation of the walls of the vagina have occurred to a very great extent; for in such a case even the largest of

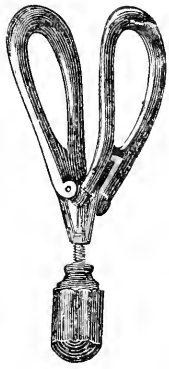

Fig. 23.—Schilling's supporter.

these instruments will not effect the transversal tension of the vagina necessary to fix the uterus. We should, therefore, prefer either a large sponge maintained by a T bandage and a pad, or one of Gariel's air pessaries, or else Roser's supporter slightly modified. This modification consists in substituting for the elastic spring a rod of maillechort, the curve of which corresponds to the axis of the pelvis, and the point of which is terminated by an ebony button, about $1\frac{1}{2}$ inches in diameter. To allow sufficient motion from right to left, this stem, like the apparatus previously described, should have a hinge about 2 to $2\frac{1}{4}$ inches below its exterior extremity.

Fig. 34.—Gariel's air pessary.

These are the apparatus which, after numerous and sometimes fruitless experiments, we have found to be the most useful, and although we are compelled to admit that there are cases where they are insufficient, we venture to say that in those cases none of the instruments now known will produce the desired result.

Cases are not rare in which, after a suitable pessary has been long worn, sometimes even for years, we see the deviation disappear, or at least considerably diminish, without recourse being had to any other means for combating it. But, as this fortunate result is always the exception rather than the rule, we advise, in connection with the instruments in question, the invariable employment of one of the procedures recommended for the radical cure of prolapsus of the womb. For that purpose, it is first of all necessary to pay attention to the pathological alterations of the uterus, and especially to the chronic engorgement and the hypersecretion of the mucous membrane, which are rarely absent. The relaxation of the vaginal walls and of the uterine ligaments, will be moreover treated by means of hip-baths, cold injections and astringent remedies, which may be applied with a sponge or by injection. We will mention as astringents the solutions of alum, of perchloride of iron or of tannin, and decoctions of oak bark, rhatany root, etc. The use of ferruginous baths will also render

good service; but we must, in addition, take care never to neglect hygienic and pharmaceutical treatment corresponding to the state of the system, and to continue this treatment with all needful perseverance.

We ought also to mention certain operations which have been proposed for the **radical cure** of this malady. In the first place, we find the contraction of the vagina by the removal of larger or smaller strips of the mucous membrane, with subsequent reunion of the borders of the womb by the intermitted sutures (*elytroraphia*), and the contraction of the vulva (or *episioraphia*), consisting in trimming the two sides of the vulva by the excision of the edges of the labia majora, which are then re-united by three or four points of simple suture. We have up to the present time performed the first of these operations thirteen times and the second only five times. But the results have not been at all satisfactory. The contraction obtained by elytroraphia always yields in the course of a few weeks after the operation, in consequence of the pressure exerted by the uterus descending into the vagina, and in our cases of episioraphia, the point formed by the reunion of the lips of the vulva had not a breadth sufficient to retain the uterus. Perhaps, too, the lips themselves, lengthened continually in consequence of the pressure of the uterus, had finally attained such a prolongation that the opening which they surrounded, dilating more and more, finally allowed the uterus to pass through, as before the operation.

From the results obtained in our own cases, we can by no means pronounce favorably on these operations.

Recently, Pauli has proposed to produce this contraction of the vagina by introducing and retaining for a long time, in this organ, two round pessaries, with the view of exciting by this means a violent inflammation of the vaginal walls, accompanied by cauterization. Although the cases which he has reported are favorable, many patients would not submit to it, for it compels them to keep their beds for several weeks. Besides, success is never certain, and it cannot be denied, that the artificially excited inflammation might be transmitted from the vagina to the bladder, the uterus or the peritoneum. Furthermore, the procedure is still too recent to allow us to pronounce an opi-

nion upon its value and practical utility. It is the same with that which Desgranges proposed some years ago for the pinching up of the vagina, which we have tried once only.

Fig. 35. Desgranges' serre-fine.

The instruments which he employs for this purpose are forceps, $2\frac{3}{4}$ to 3 inches long, bent upon their flat surface, with crossed branches, the extremities of which are furnished with teeth or points. These are called **serre-fines.** Another instrument, represented in figure 36, is also used to take up and introduce these forceps. A tin valve-speculum is first introduced into the vagina, then these small forceps are placed with the porte-forceps in the parts of the vagina desired, in such a manner that there shall be two or three in each space between the blades of the speculum. We should always commence with the posterior wall of the vagina, and always with the forceps nearest to the vulva. Upon the anterior wall, on the contrary, we should begin with the most distant forceps. Having removed the speculum, we then introduce into the vagina a pistil, tipped with an olive-shaped button, which makes pressure on the bottom of the vagina from below upward, and is fixed exteriorly by means of a bandage. The patient then remains tranquilly in a horizontal position, lying upon the back. The little forceps fall of themselves from the fifth to the tenth day, and are drawn out by a thread previously attached to their extremities. When the application of the forceps is renewed, care should be taken to choose new places for them, and if the vagina has become too contracted for the introduction of the

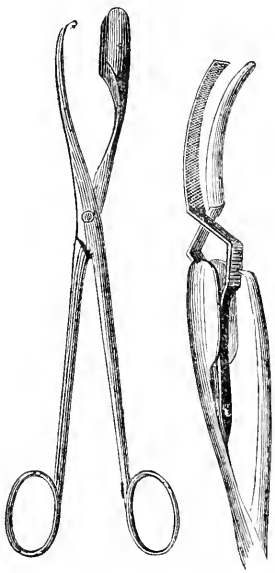

Fig. 36.—Desgranges' apparatus for pinching the vagina.

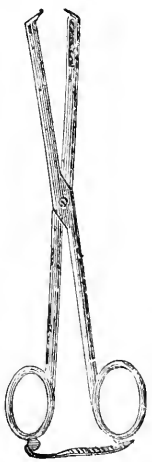

Fig. 37.—Desgranges' elytrocaustic forceps.

speculum, the forceps must be directed with the finger. It will not generally be requisite to repeat this operation more than ten times. The vagina, little by little, diminishes in size and in relaxation. Afterward, cicatrices may be seen in various places, and finally it becomes so contracted that the finger can scarcely be introduced. Desgranges proposes to adopt at the same time a combination of mechanical compression and cauterization. For this end he employs forceps $4\frac{3}{4}$ to 5 inches long, having very much the form of a dressing forceps, the rings of which are fastened by means of a racket. The end which is introduced into the vagina possesses upon each bite a groove, three-fifths of an inch in length, one-fifth of an inch in width and one-tenth of an inch in depth, the extremities being terminated by a sharp tooth; in this groove is placed a caustic composed of the chloride of zinc. Desgranges calls the entire instrument an elytrocaustic forceps. The operation is performed as follows: After having oiled and introduced the index finger as high up as possible into the vagina, a fold of the mucous membrane near the cervix should be seized with Muzeux's hooked forceps. Then the forceps above described is introduced along the finger, and the fold is seized as deeply as possible, and is compressed by closing the handles of the forceps. Desgranges thinks that five or six applications of this instrument will suffice to produce firm and durable cicatrization. As already stated, we have hitherto used this instrument but once, and the patient being still under treatment, we will not allow ourselves to pronounce definitely upon it.

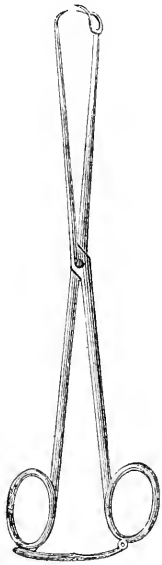

Fig. 38.—Muzeux's hooked forceps.

Note by French Translators.*—We ought to add to the number of radical operations the **amputation of the uterine neck,**

* This note would perhaps have been better placed at the end of the chapter on hypertrophy of the womb. We have, however, preferred to leave it here as it is for the prolapsus that Messrs. Huguier and Chassaignac have proposed the operation in question.

which we cannot pass by in silence, as this operation has acquired, during the last few years, considerable importance. Formerly practised by D'Outrepont and Textor for cancer, it has fallen into disfavor rather on account of the nature of this latter disease, which is so likely to return, than from the dangers of the operation itself. For these are not so great as some surgeons, perhaps a little timid, would wish us to believe. And since return is not to be apprehended in prolapsus as in cancer, there is no contra-indication to the operation.

It was M. Huguier, we believe, who first practised amputation of the neck in a case of prolapsus. He starts from a pathological point of view, the justice of which we will not discuss, namely, that prolapsus is but very rarely a true descent of the womb, but consists almost always in hypertrophy or engorgement of the uterus, which, remaining in its normal position, augments in size, and not being able to spread itself in every direction by reason of the neighboring organs, lengthens itself little by little, and at last obtrudes into the vagina.* Hence, the idea of removing that portion of the neck that can be reached by simply separating the labia majora. The operation is extremely simple. We must, however, be careful not to wound the bladder or the rectum, and to disengage them before practising the amputation. Furthermore, when the hæmorrhage is abundant, as is ordinarily the case, it will be necessary to apply some ligatures. M. Huguier at first employed a bistoury to cut off the portion of the neck which he wished to remove; but the abundant hæmorrhage induced him to have recourse to Chassaignac's linear écraseur, and now he always employs this latter method of amputation after having denuded the neck by means of a bistoury, and carefully separated it from the neighboring organs.

The cases observed up to the present time are not sufficiently numerous to form the basis of a definitive judgment as to the value of this treatment. However, M. Huguier does not know any case where the termination has been unfortunate or which has presented any grave accident.

It was in 1848 that M. Huguier made the first amputation of

* M. Huguier states that in the autopsy he has met with similar cases twenty four times out of thirty.

the neck in a case of prolapsus. The result was such that he did not hesitate afterward to have recourse to the same operation, and he has now collected the observations of eight or nine similar cases. All the patients quitted the hospital cured, or at least with a sensible amelioration. Unfortunately, it was not possible to follow all. But among those whose residence was known, not a single case of relapse has been ascertained. We saw ourselves a patient return to the Beaujon hospital two years after the operation on account of a slight cystocele complicated with rectocele; but this affection was of so little consequence that the patient preferred to remain so rather than submit to an operation. The vagina was of normal length.

Another patient, operated on in 1849, was brought into the same hospital in 1857, in consequence of a spontaneous gangrene, which proved fatal. Here the autopsy permitted the verification of the results of the operation, and the anatomical specimens are still preserved in the Beaujon hospital. The vagina shows a length of $2\frac{3}{4}$ inches, the uterus is of normal size, and there is a slight retroversion. On the mucous membrane of the vagina, upon a level with its insertion over the neck of the uterus, a slight scar of a semi-lunar form is found, about four-fifths of an inch long by two-fifths wide. There exists no other trace of the operation performed eight years before. To obtain such a result, all that had been requisite was to remove the portion of the neck which projected out of the vulva, and to keep the patient for some weeks (four to six) in a recumbent dorsal position. The hypertrophy and engorgement of the uterus disappeared little by little, and the patient was, so to speak, radically cured.

It would be important here to note in each case very exactly the condition of the patient before the operation. We have not been able in a sufficient number of cases to obtain all the details necessary for that purpose; and furthermore, our readers will but gain by waiting, for M. Huguier has promised a complete work on this subject, and the observations which he will communicate will be the more precise, as he, fortunately, intends to give representations of the state of the patients before and after the operation. These valuable illustrations will be by M. Lackerbauer, one of the first anatomical painters of Paris.

But M. Huguier is not the only one who has performed this operation. M. Chassaignac has repeated it after him, but always with the linear écraseur. He has, to our knowledge, performed the operation six times, and never with any accident. One of the patients operated upon three years ago is yet very well; a second is withdrawn from the observation of M. Chassaignac; two others, operated upon, one, Nov. 30, and the other, Dec. 16, 1857, which we both frequently see, are very contented with the results of the operation. Two others, finally operated upon, 15th March, 1858, are still under treatment. Upon one of them the small forceps of Desgranges had been unsuccessfully applied on a former occasion. One of the amputated cervices weighed nearly an ounce and a quarter.

Up to the present time, conception has not been observed after the operation, but this must be possible, for the catamenia suffer no interruption and return very regularly. In one of the patients of M. Chaissagnac, we noted the menstrual reappearance three weeks after the operation. One of the patients of M. Hugnier, having had sexual relations too soon after the operation, was taken with metritis, but this soon yielded to antiphlogistic treatment.

Such are the facts we are able to cite. They are not sufficiently numerous, and in many cases sufficient time has not elapsed to permit us to draw definite conclusions from them. Still, we venture to hope that this new method of operation will do real service. Nevertheless, it is not an operation of small importance, and we think it should be reserved for patients affected with a prolapsus which is considerable and very inconvenient, and with whom the uterus cannot be maintained in place by means of a pessary. A simple prolapsus of the womb would not be a sufficient indication.—*H. D. & A. S.*

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§ 2. *Elevation of the Womb.*

The elevation of the womb is always a result of some antecedent malady. The most frequent cause is a pathological enlargement of the organ of so high a degree that the superior portion of the pelvis is too narrow to contain it. This is the case when voluminous tumors or a considerable accumulation of water occupy the cavity of the uterus. Under such circumstances the inferior segment of the organ dilates little by little, and soon completely fills up the entrance of the pelvis. It thus rests on one or both sides, upon the arch of the pubis, and sometimes reaches to the iliac fossæ. The elevation of the uterus is sometimes seen complicated with lateral deviation of this organ. Thus the presence of considerable tumors of the ovaries or broad ligaments, constantly growing toward the abdomen, may produce the displacement in question. The same deviation also occurs when tumors are developed below the

uterus in the pelvic cavity, which, as they increase in size, constantly push the uterus higher. This may result from small ovarian tumors, from an organized peritoneal exudation, from extra-uterine pregnancy, or even from a fibrous or cancerous degeneration of the walls of the pelvis. Finally, it is not rare to find the same anomaly produced by peritoneal adhesions, formed during the confinement between the summit of the uterus and the anterior lateral wall of the pelvis.

The more the uterus is elevated, the greater has been the violence and rapidity of its displacement and the more also the vagina will be elongated. The part which is ordinarily the widest, namely, the bottom of its cavity, is generally contracted into the shape of a funnel, and its walls lose their wrinkles and furrows, and become perfectly smooth. If the uterus is not at the same time in a state of chronic engorgement, one is struck with the shortness of the vaginal portion, which forms at the bottom of the vagina a little tuberosity, which there is sometimes difficulty in discovering. When the elevation of the womb results from peritoneal adhesions, we shall always find, besides the forced elongation of the vagina, in consequence of the upward tension exerted upon the tissue of the uterus, a more or less considerable enlargement of its cavity.

The elevation of the uterus does not in itself produce peculiar symptoms; and when patients complain of pains of various kinds, these pains are ordinarily due to the disease which has caused the elevation. This anomaly has consequently little practical importance, for the treatment must be directed exclusively to combating the primitive disease. We, therefore, may regard as superfluous, any more ample details on a malady which is always secondary.

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§ 3. *Anteversion of the Womb.*

The normal position of the uterus, as is well known, is such that its summit is slightly directed forward, its posterior face

looking upward and its anterior face downward. Its longitudinal axis is not then perpendicular, so that this organ presents, in circumstances perfectly normal, a certain degree of anteversion. This becomes pathological whenever it is considerably augmented by the action of different predisposing or accidental causes, which then give rise to the most varied disorders in the functions of the uterus or of the neighboring organs.

This deviation of the womb is frequent in young women who have the pelvis much inclined. For in such cases the posterior face of the uterus, looking upward more than ordinary, sustains the pressure of the intestines. Here anteversion will seldom fail to happen, if at the same time the uterus itself, from some alteration, presents an augmentation of weight and volume. The displacement in question, therefore, very often results from the pressure exerted upon the uterus by the neighboring organs. In fact, it is often met with as a result of voluminous ovarian tumors, developed on one side or the other; peritoneal exudations of considerable quantity, above or behind the uterus, may also produce it, or an accumulation of liquid in the peritoneum, etc.

Anteversion, moreover, is often a premonitory symptom of depression or prolapsus of the womb, especially when, in consequence of a considerable relaxation, and of a prolapsus of the anterior wall of the vagina, the bladder occupies a very low position. For here the prolonged accumulation of the urine pushes backward the neck of the womb, and thus brings on an anteversion. Finally, short membranous adhesions uniting the fundus of the uterus to the anterior walls of the pelvis and of the abdomen may occasion the displacement in question.

If the patient is not pregnant, the anteversion of the womb will not be attended with pain, except when caused by a structural change in the uterus itself, or by a considerable tension of the folds of the peritoneum which fasten it to the posterior wall of the pelvis, or finally, when the neighboring organs, and particularly the bladder and rectum, undergo prolonged pressure. The symptoms occasioned by anteversion of the uterus are limited, in consequence, to a painful tension about the rectum, a frequent necessity of urinating, and a usually obstinate constipation; all which symptoms notably increase at the epoch

of menstruation, when the uterus augments in weight and size.

The diagnosis is not possible until after vaginal exploration. We are at first struck by the elevated position of the cervix, the point of which is turned toward the sacrum. In penetrating more forward with the finger, we find the fundus of the vagina dilated and uniform, especially at its anterior side, along which we may often trace for some distance, or even to the symphysis pubis, the body of the uterus situated more or less horizontally. When the walls of the abdomen are thin and relaxed, we have often, by making pressure over the pubis from above downward, and from before backward against the uterus, succeeded in pressing this organ against the exploring finger situated in the vagina, a manœuvre which allows us at the same time to obtain an approximative estimate of the volume of the uterus.

The results of an exploration such as we have described, will not permit us to confound this deviation with anteflexion. For in the latter affection, the cervix is more in the direction of the axis of the pelvis. It is soft and but little stretched. The uterine orifice is more or less open and through the superior wall of the vagina the body of the uterus is not perceived, but its fundus forms a rounded and ordinarily movable tumor. Between this tumor and the vaginal portion, there is found a space of about half an inch, soft and supple, corresponding to the angle of the inflexion. And we do not perceive in this angle the compact tissue of the uterus, which in anteversion can be followed without interruption, from the cervix to the pubis Finally, we must add, that flexion of the uterus is ordinarily accompanied by menorrhagia and metrorrhagia, or by abundant leucorrhœa and violent uterine colics, all which symptoms are entirely absent in the disease which now engages our attention.

After what has been said upon the manner in which anteversions are formed, it may be comprehended that it will be rarely in the power of the physician to completely cure this disease. Nevertheless, we ought never to abandon to her fate a patient who may be affected with it, because it will naturally follow that the disease must continually augment, while, on the

other hand, it is often possible to moderate the attendant pains. We may even expect a complete and permanent cure when the uterus has been, in consequence of fecundation, displaced from its normal situation for a considerable time; but, we should add, that the anteversion is then often a cause of sterility in consequence of the deviation of the orifice from its normal relation to the axis of the pelvis.

As for the treatment, we will mention first, the method lately proposed to elevate the uterus by mechanical means, and to maintain it in as normal a position as possible. This method has had many practical trials. The uterine sound and intra-uterine pessaries have been employed,a detailed description of which we have given in the treatment of flexion of the womb. We have ourselves tried this treatment in many cases, but without wishing to speak of the pain induced, and of the danger of occasioning a metritis or a peritonitis, we have attained the conviction that it by no means answers to what has been anticipated from it. In fact, the uterus remains in its new position only so long as it is maintained there by the instrument; and ordinarily, in a little time, it redescends to the place which it formerly occupied, so soon as the supporter is taken away. We have placed several patients under this treatment for entire months, and we have now sufficient experience to be able to maintain that the mechanical means which are here in question do not at all merit the praises which have been heaped upon them from all sides.

Convinced that, in most cases, the anteversion of the uterus persists only in consequence of the constant pressure exerted upon this organ by the intestines, we have attempted to moderate this pressure by a girdle applied exactly over the hypogastric region, pushing the intestines from below upward, and from before backward, and we have thus sometimes obtained very satisfactory results. We do not affirm that by this means we have made the deviation of the womb to cease. Still it has not been less useful in diminishing the pressure exerted from above downward upon this organ, and with it the continual tension of the folds of Douglas, as well as the compression of the base and neck of the bladder, and of the rectum. With some patients in whom the anteversion of the womb was compli-

cated with a considerable descent of the anterior part of the vaginal cul-de-sac, and sometimes even with a slight vaginal cystocele, we have obtained happy results from the prolonged application of Roser's supporter, described above. But in all such cases we have modified it so that the wooden button, two and a fifth inches long, which terminates the spring, is not applied against the pubis after having been introduced into the vagina, but it remains directed upward and backward, and thus exerts a slight pressure upon the body of the uterus, which is sustained in front by the anteversion. In order to make this pressure on a more extended surface, the extremity of the olive is flattened so as to present a diameter of about one inch, and to moderate this pressure the size of the disc may be slightly diminished, and it may be covered with a thin layer of fine sponge. Many of our patients who have worn this instrument for six or eight months have been completely freed from their sufferings, and with two of them we could not, in spite of examinations often repeated at long intervals, recognize the deviation of the uterus, which however had previously been diagnosticated beyond all doubt.

There surely is no need to add that when the anteversion is accompanied by an alteration in the tissue of the womb, this demands a particular treatment, which often of itself suffices to make the pains of the patients cease, or at least to considerably diminish them; for the deviation is often of but secondary importance. It will also suffice to repeat here that the anteversions of the womb which are caused by large ovarian tumors, by effusions of liquid into the abdominal cavity, etc., etc., have very little importance, and do not demand any treatment, except it be possible to remove the primitive malady, which assuredly will not often succeed.

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§ 4. *Retroversion of the Womb.*

By this name an affection of the womb is designated in which the body of the organ descends backward into the space comprised between the folds of Douglas, while the neck and vaginal portion approach the anterior abdominal wall and rise up even to the height of the symphysis pubis.

Except in pregnancy, the retroversion of the womb is a secondary affection produced by various maladies of the womb or of the neighboring organs. This is generally caused by peritoneal adhesions of the body of the womb to the posterior pelvic wall; or by considerable effusions between the bladder and the anterior portion of the uterus; or by fibrous tumors which, developing themselves in the posterior wall of the womb, draw it backward, etc. It is more rarely observed as a consequence of tumors of the ovaries or of the large ligaments, which, by a lateral development may have penetrated between the uterus and the anterior abdominal walls. After what has been said, it will be seen that this deviation of the womb is of secondary importance in comparison with the maladies which produce it. We shall, therefore, dispense with a detailed description of this anomaly, especially as the symptoms complained of by patients are almost the same as in anteversion. For here also the patient complains of a painful pressure in the sacral region, of dysmenorrhœal pains, of difficulty in ejecting the fæces and urine; and finally, the affection is also followed by sterility. As to prognosis, we will refer to what we have said upon the subject of anteversion, and it is unnecessary to add that the treatment also does not differ from that of this disease, except that in retroversion mechanical means tend to push the body of the retroverted uterus upward and forward, and to maintain it as much as possible in this artificial position. Unfortunately, we know of no apparatus which answers for this end, for the elevation of the womb by a sound introduced into its cavity, or by any other means whatever, succeeds as rarely as in anteversion. The introduction of a sponge, recommended by some authors, has proved, in our experience, completely fruitless, and the advice lately given by Favrot, to lift the fundus of the

uterus by means of a bladder of rubber filled with air or liquid and introduced into the rectum, is not susceptible of being practically used, because the uterus is ordinarily retained in its position by tumors which make pressure upon it, or by adhesions with the posterior pelvic wall, and because this organ does not present the necessary mobility. Furthermore, the presence in the rectum, of the bladder in question, gives much inconvenience to the patient. If we are told that the same cause will render the treatment of anteversion, by means of the mechanical appliances above described, equally impossible, we answer that, considering the normal position of the uterus, anteversion, much oftener than retroversion, results from a relaxation of the ligaments, and of the anterior part of the vaginal cul-de-sac; for here it is necessary to have a tension or a compression much more energetic on the part of the neighboring organs, to draw the uterus into a position entirely contrary from that which it occupies in the normal state. Consequently, in the treatment of the disease in question, we entirely renounce all mechanical means, and we limit ourselves to the employment of the remedies which are able completely to drive away or diminish the uterine congestion which in these circumstances rarely fails, and may, by itself, produce notable sufferings. In fact, we are persuaded that in fulfilling this end, we render to the patient the only service which it is in our power to afford her.

Retroversion of the womb is much more important when it appears during pregnancy, but as it does not enter into the plan of this work to give detailed consideration to such female maladies as are connected with the act of reproduction, we refer for this complication of pregnancy to treatises and manuals on obstetrics.

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§ 5. *Hernia of the Uterus.*

It is very rare to see the uterus, when in a state of vacuity, protrude through a natural or artificial opening of the abdominal or pelvic walls. Still, medical literature records cases of the presence of this organ in hernia, inguinal, femoral, ischiatic, and even infra-pubic. Finally, the uterus has been seen protruding through an eversion of the anterior abdominal wall, such as is often met with after frequent pregnancies, or by the cicatrix of a successful Cæsarean section.

We must, relying upon the observation of two anatomical specimens, accede to the opinion of those who affirm that hernia of the uterus results from a continued pressure exerted on the walls of the hernial canal by various organs inclosed in the hernial sac, and firmly adhering to the womb, such as the Fallopian tubes, the ovaries or portions of the intestine or the omentum.

Having never observed a similar case, we cannot but believe, in the absence of sufficient evidence upon the subject of the symptoms which accompany hernia of the uterus in the empty condition, that this species of deviation of the uterus, will, as in all others in which the organ undergoes similar tension, be followed by severe dysmenorrhœal pains, uterine colics, disorders in the secretion of mucus, etc. As to the diagnosis, we think with Kiwisch that it will not be possible, except when we can perceive through the hernial sac the point of a sound introduced into the uterine cavity.

It is superfluous to say that the first duty of the physician will be to restore to its proper position the displaced organ. As to the rules of taxis, they depend upon the place where the hernia may be.

It has been demonstrated that the uterus, although inclosed in a hernial sac, may contain a fœtus; but then the pregnancy is ordinarily interrupted by a too prompt appearance of expulsive pains. From this fact it is evident that we should so much the sooner operate for its reduction when pregnancy is suspected.

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Art. VIII.—Inflammations of the Womb.

§ 1. *Acute Parenchymatous Inflammation of the Womb.*

Pathological Anatomy.—As inflammation of the impregnated uterus is rarely mortal, we have not often the opportunity to examine in the cadaver, the pathological alterations which it presents during the acute period; but we frequently find in cadavers, alterations of tissue, resulting from the organization of effused matters, and which are sometimes designated under the name of chronic metritis, sometimes under that of hypertrophy or chronic engorgement of the uterus.

In the few cases where we have had opportunity to study acute metritis upon the cadaver, the uterus presented the following alterations: The organ had increased in volume, especially in its superior portion, and in a direction from before backward. It was of a livid red; still, this discoloration was not at all regular, but upon many points the color was deeper, and in others much lighter. Through the peritoneal envelope upon which, in some cases, lay thin membranous or fibrinous clots, the subserous cellular tissue being in many points slightly infiltrated with serum, the veins were seen, at least in some places, dilated and gorged with blood. By making an incision into the walls of the uterus, they were found of a bright

red color, and considerably hypertrophied. From the divided veins flowed a considerable quantity of liquid blood. The entire tissue was very much moistened, and by pressure a considerable quantity of yellowish blastema could be made to exude. The cavity of the uterus did not present any anomaly as to its dimensions. The mucous membrane of the uterine cavity, properly so called, was much thickened, softened and tumefied in various parts. It also was intensely red, and was covered with a slight layer of a viscous colorless liquid, perfectly transparent or of a yellowish red. The mucous membrane of the cervical canal had its normal color, and its general aspect did not differ from that of the healthy state. The vaginal portion was always of a livid red and greatly thickened. In the case of two women still virgins, the genital organs of whom we could examine after death, the uterine orifice was transformed into a little rounded fossa. Here, as in the other cases which we had an opportunity of examining, the sub-mucous cellular tissue of the vaginal portion was infiltrated and softened, and the epithelial layer of the lips of the os tincæ was at several points abraded; finally, we ought to mention a very considerable development of the papillæ of the vaginal portion.

The **complications** of acute metritis which we have met with, are acute vaginitis, acute catarrhs of the urethra and of the mucous membrane of the bladder, parenchymatous or peritoneal ovaritis, more or less considerable effusions upon the peritoneum in the neighborhood of the uterus, and catarrhal and dysenteric affections of the intestinal mucous membrane. We will describe hereafter the alterations of the uterine tissue which are the consequence of acute metritis.

Symptoms.—The symptoms caused by acute metritis are local and general: the first are accessible to the means of exploration employed by physicians; for the others, we must refer to the patients. The disease ordinarily commences with a very disagreeable sensation of fullness, of weight and heat in the pelvic region. The sensation at the end of twelve or twenty-four hours changes into an intense pain, situated in the hypogastric region or about the sacrum, and is accompanied by violent tenesmus of the rectum and bladder. Ordinarily, the malady commences by a chill, followed by heat and a very rapid pulse.

It is not rare to observe then frequent vomitings and quite severe diarrhœa, which soon cease to give place to a more obstinate constipation. Ordinarily, when the disease commences during menstruation, the discharge is suddenly arrested. If, on the contrary, the catamenia come on during the course of the metritis, there is no sanguineous flow at all, or else, in very rare cases, it is very abundant, and becomes a real menorrhagia. Such cases have been lately designated under the name of **hæmorrhagic metritis.**

The least touch about the region of the uterus or groins causes the severest pain; as also when the finger introduced into the vagina makes a somewhat strong pressure upon the cervix and the cul-de-sac of the vagina.

It is very rare that the hypertrophy of the uterus is so considerable that the fundus can be felt above the symphysis pubis through the anterior abdominal wall. When that is possible, we may with certainty conclude that there existed before the development of the metritis a notable hypertrophy, caused by a chronic engorgement, by fibrous tumors, etc., etc. When a peritonitis, of some little extent, accompanies the metritis, the existence of an effusion may sometimes be determined by percussion and palpation.

By digital examination an elevation of the temperature will ordinarily be found in the external genital parts, as well as in the vaginal canal, the walls of which are either very dry at the commencement of the disease, or are covered with a small quantity of mucus, which is ordinarily viscid.

The vaginal portion, the touch of which is very painful for the patient, is a little too short, and too much thickened. In women who have not had children, the uterine orifice is transformed into a round and scarcely perceptible fossa, in the immediate neighborhood of which the œdema of the sub-mucous cellular tissue is too often sufficient to diminish the adherence of the mucous membrane with the uterine parenchyma. In women who have had children, the tumefaction of the vaginal portion is ordinarily more considerable, but the uterine orifice always presents the form of a transverse fissure. Through the cul de-sac of the vagina, and especially in its anterior portion, a tumor is recognized by the touch, which sometimes yields,

sometimes resists on pressure. This tumor is always very painful, and its dimensions depend on the violence and duration of the disease. It is never met with when the genital organs are in their normal condition.

When the patient can be examined with the speculum, which often is not possible, at least in the commencement of the disease, because of the pains attending its introduction, the tumefaction and redness of the external genitalia, and especially of the labia minora and the orifice of the urethra, will usually suggest the inference that there exists hyperæmia of the uterus and its appendages.

The vaginal mucous membrane is also found of a scarlet or violet red, its folds well developed, its papillæ projecting, and of the size of a grain of millet, especially near the vaginal cul-de-sac. The cervix is also of a bright red, and is sometimes covered with well developed papillæ. The uterine orifice presents the alterations which have already been recognized by the touch, and erosions are sometimes found, especially upon the posterior lip. The orifice of the womb ordinarily gives passage to a transparent liquid with an alkaline reaction, completely limpid and slightly sanguinolent. This liquid, especially in women who have had children, or who have suffered from chronic uterine catarrhs, is often mingled with the vitreous mucosity of the cavity of the neck. The epithelium of the vaginal portion is often so easily detached, that the introduction of the speculum, or even the repeated touching with a pledget of lint, is sufficient to give rise to a slight hæmorrhage.

Progress.—The course of acute metritis may be considered as quite rapid, for the most painful symptoms ordinarily disappear after six or eight days. The pains in the pelvis and around the sacrum diminish as well as the tenesmus of the rectum and bladder. The fever ceases. The excessive heat of the external genitalia and of the vagina diminish, and with it the acute sensibility of the cervix and the cul-de-sac of the vagina. The secretion of the uterus and the vagina, becoming more abundant and more dense, assumes the consistency of cream, in consequence of the quantity of mucous corpuscules and epithelial cells which are mixed with it. The intense redness of the mucous membrane of the genital organs disappears. The urine is

rich in ammonia, and deposits an abundant sediment, and with this secretion the health of the patient returns, little by little; but this improvement is only relative. In truth, in the majority of these cases, the patients still complain of a vague sensation of fullness and weight in the pelvis, and of difficulty in defecation, and in the emission of urine. These symptoms, even when the patient does not attach much importance to them, demand the greatest prudence on the part of the physician, for they are often the precursors of the disease known under the name of chronic engorgement of the uterus; or indeed, when it is not so, they evince at least a great disposition to a relapse.

Termination.—When the disease is diagnosticated in time, and when the proper remedies have been employed, a complete cure is ordinarily obtained. But when this is not the case, the metritis may cause diseases difficult to cure, or entirely incurable; or the patients slowly waste away, and some of them at last succumb. Among the sequela we find chronic engorgements of the uterus and various deviations of this organ, troubles of menstruation, and the secretion of the uterine mucus, sterility, and finally the formation of abscesses in the parenchyma of the uterus, and the extension of the inflammation to its appendages, or to its peritoneal investment. Such of these affections as have not yet received attention will find a place in another part of this work.

Etiology.—The most frequent cause of acute metritis is the retention or sudden suppression of the flow of blood collected in too great quantity in the walls of the womb, when this organ is the seat of a secondary congestion in the course of the phenomena produced in the ovaries by menstruation. This is why this disease is so frequently found among women who are exposed to cold during menstruation, or with those who at the same epoch have suffered from some anxiety or trouble of mind, etc. The abuse of venereal pleasures, especially when they are accompanied by an immoderate excitation, may be the cause of this disease, and this explains why it is relatively more frequent among the *filles publiques*. The action of certain emmenagogues, whether medicines or exterior agents, as for example, the injection of cold water into the vagina, deserves

to be mentioned. Finally, we must not conceal the fact, that certain mechanical appliances employed in the treatment of diseases of the sexual organs may cause inflammation of the uterus. We may mention, for example, the introduction of replacing-instruments into the womb, or the use of solid pessaries, which exert a pressure upon the organ. It is very rare that this disease is the consequence of external violence, such as a blow or a fall on the abdomen.

Treatment.—Acute metritis is seldom sufficiently violent to compel the physician to have recourse to bleeding: at least we do not remember a case where we have been forced to adopt this course. In fact, we think that this treatment will never be indicated, except in cases where extensive peritonitis is present and is accompanied by a vigorous febrile reaction, and where the patient is young, robust, and not anæmic. Generally, the sharp pains which accompany this disease, will yield to local sanguineous emissions: and for them we prefer, whenever it is possible, to apply five or six leeches to the vaginal portion. Indeed, the immediate depletion of the organ which is the seat of the inflammation has a much more prompt action than the application to the hypogastrium or inguinal regions of a much larger number of leeches. This last method of application is only preferable where we have to do with a concomitant affection of the peritoneum, or where special reasons, such as the state of virginity, or a too great sensibility of the vagina, etc., prevent the introduction of the speculum.

The number of local bleedings will vary according to the more or less violence or obstinacy of the disease, but we shall rarely be compelled to have recourse to them more than three or four times. The scarification of the vaginal portion, which has been so highly spoken of in many quarters, will scarcely fill the place of leeches in a disease, where, as here, a somewhat prolonged hæmorrhage, such as is obtained by leeches, is necessary to favor the depletion of the organ.

If the excessive sensibility of the abdomen does not yield in a short time to the sanguineous emissions, we may order a tepid bath for ten or twelve minutes, the inferior part of the abdomen to be covered with emollient cataplasms. Injections of

warm milk or a mixture of oil and water, repeated two or three times a day, are the best means of combating the tormenting sensation of heat and dryness which patients sometimes experience in the vagina and external genital organs.

We may recommend, as a temporary palliative, a lavement containing a few drops of the tincture of opium.

The internal medication is limited to the use of gentle purgatives, as for example, the neutral salts, castor oil, etc., and of certain sedatives, as opium, morphia, etc. The use formerly so frequently made of preparations of mercury, and particularly of calomel, appears to us useless and even injurious in consequence of the disagreeable secondary action which these medicaments often have.

When a sudden suppression of the courses has been the cause of the disease, it is necessary to beware of the use of the energetic emmenagogues, recommended by many authors, for they augment the congestion of the uterus and thereby the inflammation itself.

In these cases, as in others, the best treatment is that which we have indicated, that is to say, local bleeding, warm baths, and injections of tepid liquids into the vagina.

§ 2. *Chronic Parenchymatous Inflammation of the Womb.—Chronic Engorgement.*

Pathological Anatomy.—The chronic engorgement of the uterus is the most frequent termination of the acute metritis which we have just described. The uterus, taken from the dead body, is always hypertrophied; and the augmentation of volume is often such that the organ attains the size of a man's fist. This volume is the result of the thickening of the uterine walls, which, toward the summit of the organ sometimes present a diameter of four-fifths to one and a fifth inches when the affection of the womb has attained a high degree. The entire organ is hard and resisting; sometimes it preserves its natural color, sometimes its surface in several points appears of a livid red It is especially upon cutting the womb, that the resistance of the parenchyma is recognized, as it frequently creaks under the knife. The uterine tissue is ordinarily dry, anæmic in the

greater portion of the organ, while in some parts which are recognizable by the livid color of the surface, dilated veins gorged with liquid blood are found. When the disease does not date from so distant a time, or where some other alteration of tissue, as for example, a fibrous tumor, a polypus, etc., occasions a permanent congestion, at the autopsy a more or less extended hyperæmia of the walls of the uterus is found. It is the same when tumors, or the pressure of neighboring organs, or diseases of the lungs and heart, etc., occasion disturbances in the general circulation and a stasis in the ramifications of the inferior vena cava.

By a microscopic examination of the tissue of the womb, an augmentation of the cellular tissue is recognized in this affection, proceeding from the organization of the liquid effused between the muscular fibres. The nature of this disease would then be, in an anatomical point of view, a **hypertrophy of the cellular tissue.** When this hypertrophy is uniform throughout the organ, it necessarily produces a compression, or perhaps even a partial obliteration of the vessels ; but when it is more developed in certain points, and more feeble or completely absent in others, it happens that in these last points the vessels, and especially the veins, dilate in consequence of the duration of the circulatory disturbance, and give rise to the partial hyperæmia of which we have spoken. It thus sometimes happens that from the increased pressure of the blood the dilated vessels burst, and produce sanguineous effusions of greater or less extent, which are met with, especially in the most internal and the most external layers of the tissue of the womb. The same causes which give rise to the disturbances in the circulation and to hyperæmia in the walls of the organ, ordinarily conduce to a chronic stasis in the vessels of the uterine mucous membrane. And this stasis produces the pathological alterations which we shall hereafter describe in speaking of the chronic catarrh of the uterus. These alterations usually spread over the entire uterine mucous membrane, even to the mucous membrane of the vaginal portion, where it is charac terized by simple erosions, or by more profound ulcerations.

Like eccentric hypertrophy of the heart, the hypertrophy of the uterine walls, of which we have just treated, is accompanied with a dilatation of the cavity of the organ, per

ceptible in all its dimensions, but especially in that of its longitudinal diameter, which sometimes, when the disease is much advanced, presents an increase of from four-fifths to two inches. From the uterine cavity flows a mucous, and often a puriform liquid, with which is ordinarily mixed some of the vitreous secretion of the mucous membrane of the neck, the quantity of which varies with the violence of the uterine catarrh. The **complications** of the chronic engorgement of the uterus are varicose dilatation of the veins of the neighboring organs, principally of the broad ligaments, of the vagina, of the bladder and of the rectum; chronic catarrh of the vagina and of the mucous membrane of the tubes and of the bladder; adhesions between the peritoneal envelope of the uterus and the walls of the bladder; chronic hyperæmias and cysts of the ovaries.

Symptoms.—Frequently, but not always, chronic engorgement is the consequence of an acute metritis. In such a case we see the acute symptoms which characterize the inflammation of the womb disappear little by little. Of the sharp pain, of the intense fever and the concomitant symptoms, there remains only a disagreeable sensation of fullness and weight in the pelvis, accompanied by a difficulty in micturition, pain in defecation, and a mucous discharge from the genital organs, which sometimes is not very abundant, but at other times appears in a very considerable quantity. During the progressive organization of the liquid effused in the parenchyma of the uterus, and so long as the diseased organ still continues to increase in weight and volume, there is an exacerbation of the pains. The patient complains of pains in the hypogastrium, and in the sacral and inguinal regions. These pains, though vague, are very severe, continuing almost without interruption, but increasing from time to time. They are ordinarily augmented by a vertical position, and by walking or other shaking of the body. The horizontal position often dissipates them, but not always. Any abdominal pressure in sneezing, coughing or straining in defecation, etc., is accompanied by an extraordinary and painful sensation, as if a heavy body would fall out of the pelvis. The patient, in many cases, finds an unnatural, frequent and painful desire to urinate and to go to stool, a very disagreeable smart-

ing accompanies the emission of urine, and the urine itself is highly saturated; it deposits after a little time a sediment rich in urates or more rarely in phosphates, and then there is ordinarily found mingled with it a considerable quantity of mucus. With some rare exceptions, the disease is always accompanied by obstinate constipation, and the patients often complain of a painful sensation of smarting, and of pruritus in the vagina and the external genital organs. The violence of this symptom increases or diminishes according to the abundance of the secretion of the mucous membrane of the genital organs, which also often appears to depend upon the congestion which accompanies the catamenia.

During the chronic engorgement, the menstrual flow is subject to numerous irregularities. Being ordinarily not very abundant or of long duration, it is often accompanied by painful dysmenorrhœal symptoms. Sometimes it ceases for months and even years, while on the contrary, in rare exceptions, it may become very copious. Often in consequence of the continual hyperæmia of the uterine mucous membrane, there is formed an exudation upon the internal surface of the womb. This exudation at the epoch of menstruation, is expelled with detached pieces of the mucous membrane in the form of membranous plates more or less large, and this expulsion is always accompanied with sharp uterine colics.

The insufficient menstruation which ordinarily accompanies chronic engorgement, often gives rise to a swelling and congestion of the ovaries, which is recognized by the presence of a cutting or pricking pain in the inguinal regions. Sometimes this pain is continuous, while at other times it exists only at the menstrual period.

Different troubles in the functions of digestion and assimilation are the ordinary consequences of this disease. Among these are heartburn, occasional vomiting, infrequent stools, collections of gas in the intestinal canal, and all the well known symptoms of chlorosis. After a longer or shorter time, the impoverishment of the blood exerts an injurious influence upon the nutrition of the nervous system, and although, anatomically or chemically, no alteration can be found, we cannot help noticing the most varied disturbances in the functions of the brain and

the peripheral nerves, and, indeed, all the symptoms which characterize hysteria.

Through the abdominal walls, as by the vagina, the hypertrophy of the diseased organ is easily recognized. The fundus of the uterus mounts up from three-fourths to two inches, and even more, above the pubis, assuming the form of a rounded tumor, slightly movable, and not very sensible to pressure. Often, indeed, we can without difficulty trace the lateral dimensions of the organ. By vaginal exploration, the uterus is often found much lower than in the normal state, the body tipped forward, while the neck is thrown backward into the cavity of the sacrum. The vaginal portion is ordinarily found hard and resisting, and is mostly hypertrophied. The orifice is completely closed in women who have never been pregnant, while in those who have had children it is usually gaping, with the lips turned outward, tumefied and indurated. Sometimes a loss of substance around the orifice, a consequence of ulcerations, is recognized by the touch.

Through the cul-de-sac of the vagina, in front of the vaginal portion, and without marked limits, the inferior segment of the uterus is immediately recognized. It is tumefied, hard, and little sensible to the touch. On pressure it changes its position but little if at all, while it sensibly follows the movements given to the uterus through the anterior wall of the abdomen.

Exploration by means of the sound, which sometimes is not without difficulty, on account of the contraction of the superior portion of the cervical canal, resulting from the hypertrophy of the walls of the womb, ordinarily permits a more or less considerable augmentation of the longitudinal diameter of the uterus to be recognized. By means of the speculum, we discover the hypertrophied state of the vaginal portion, the discoloration of its surface, the presence of the uterine secretion, as well as the erosions and ulcerations, which are rarely absent from the circumference of the uterine orifice. The epithelium of the vaginal portion is often so slightly adherent, that the introduction of the speculum suffices to cause slight hæmorrhages, which, however, soon cease spontaneously.

Progress.—As its name indicates, this disease is chronic, and

when it has been neglected at the outset, it is of very long duration, and obstinately resists all the means which are employed against it. Occasionally some of the symptoms disappear momentarily, and then on the contrary they affect the patient anew very severely; and this is especially the case at each new appearance of the menses. Often indeed, when the sanguineous flow is insufficient, all the symptoms of an incipient acute inflammation are remarked; the volume of the uterus increases considerably in a very little time, and this state often continues a long time, being always accompanied by an exacerbation of all the symptoms.

But the chronic engorgement is not always the consequence of an acute metritis. It is often developed after simple hyperæmia of the uterus, resulting from troubles of the circulation in the vessels of the pelvis. It is also met with after diseases of the heart, the liver, the spleen, the ovaries, etc. Frequently it accompanies other affections of the uterus, especially when the organ is submitted to a tension and an irritation from neoplasms (fibrous bodies and cancers) being developed in its parenchyma; by voluminous polypi growing in its cavity; and finally, by the collection of a considerable quantity of blood or of mucus. But in all these cases, the primitive affection is invariably more serious than the resulting malady, so that the symptoms of engorgement are of less importance. When the engorgement is the consequence of circulatory difficulties in the system of the inferior vena cava, its development is slow and gradual, the symptoms of acute metritis are absent at the outset, and it is also rare to observe in the course of the disease, the exacerbations which we have mentioned above.

Termination and Prognosis.—When the affection is become inveterate, and the organization of effused matters in the parenchyma is already considerably advanced, we must renounce the hope of obtaining a complete cure. The only case in which a favorable termination is possible, will be when, after a pregnancy, the already organized effusion shall undergo an absorption resembling that observed in all the elements of this organ during the puerperal involution. If such a natural cure do not take place, all that art can do will be to diminish the sufferings of the patient; but any injurious influence ex-

erted upon the affected organ will cause them to reappear. The prognosis is more favorable in those patients who have already attained the critical age, for the menstrual congestion no longer exists, and thus one of the principal causes of the pains will disappear. It is necessary, however, to add, that the imbibition of the tissue of the uterus favors the reabsorption of the exudation when it is not yet organized, hence we cannot expect a favorable result except in young women still having their courses. The chronic engorgement of the uterus never causes death, unless the fibrinous or albuminous exudation undergoes a cancerous degeneration; but we do not know of a well authenticated instance of this.

Etiology.—As we have already many times repeated, chronic engorgement is frequently developed in consequence of an acute metritis. It may then result from any of the causes indicated in speaking of the latter malady. It is further necessary to mention all the circumstances which may occasion a continuous irritation, a congestion, or a hyperæmia of the uterus. Such, for instance, are neoplasms and accumulation of liquid, as well as almost all the deviations and non-congenital deformities of the womb. The affection often is the consequence of labor, especially when the involution has not taken its normal course, either on account of the inertia of the walls of the uterus, or because of an inflammation which has come on during confinement. Abortions, especially when repeated, are a frequent cause of engorgements. We may also mention that immoderate coitus, accompanied by extraordinary libidinous excitement, may be one of the causes of the disease, and the sterility which is observed in prostitutes, is often probably the consequence of the uterine affection in question. In truth, although there are cases proving that conception is still possible, even when the disease is well developed, these are rare exceptions, and the majority of the women affected with this disease are sterile.

Diagnosis.—After the description which we have given of the symptoms of chronic engorgement of the uterus, the diagnosis of this affection will not, in the majority of cases, present any difficulty. It can be mistaken only for acute metritis, fibrous tumors, uterine polypi, scirrhous induration of the infe-

rior segment of the uterus, or the commencement of pregnancy. The symptoms which distinguish it from **acute metritis** are, the duration of the affection, the slight intensity of the symptoms, the absence of febrile symptoms, the augmentation, sometimes very considerable, of the volume of the organ, the lengthening of its cavity, an obstinate leucorrhœa, profound ulcerations of the vaginal portion, and a mechanical obstruction of the functions of the neighboring organs.

It is in many cases very difficult, with complete certainty, to distinguish a simple engorgement from **polypi** and **fibrous bodies** still small and projecting into the uterine cavity. In such a case, it is necessary to pay particular attention to the catamenia, which, in the disease now under consideration, are ordinarily defective in quantity, while they are almost always very copious and very frequent when fibrous bodies or sub-mucous polypi are present. Fibrous, sub-peritoneal bodies of any very considerable dimensions, are easily recognized by palpation, assuming as they do the form of tumors, rounded, mammillated, and more or less sharply defined. As to intra-uterine polypi, and sub-mucous fibrous bodies, they always cause, when they attain any considerable size, such a dilatation of the cervical cavity, that the vaginal portion gets notably shorter, and sometimes even completely disappears, while in simple engorgement, it is always hypertrophied and enlarged.

The diagnosis will, in very many cases, be much more difficult, when we have to distinguish between engorgement of the inferior segment of the uterus and **scirrhous induration** of the same portion; and we frankly avow that we do not know any discriminating symptom which is perfectly sure. We must take into account the age of the patient, the cause of the disease, if it is possible to discover one, and its progress and its influence on the general health. The extraordinary hardness of the vaginal portion and of the inferior segment of the uterus, which has been mentioned by many authors as a certain sign of cancerous infiltration of these parts, is not, in our opinion, so; for we have met many cases where the progress of the disease has in the end demonstrated, that it was but a case of simple engorgement. For the difference which exists between the ulcerations of the uterine orifice, which are so frequent in this

last disease, and the cancerous ulcerations of the vaginal portion, we refer to the special chapters upon these subjects. For the differential diagnosis of engorgement and incipient **pregnancy**, it is important, besides ascertaining the presence of the ordinary signs of pregnancy, to examine with care the state of the vaginal portion, which, in the course of the gravid condition, is always shortened and softened, while in engorgement it is constantly enlarged in all its dimensions, and becomes extraordinarily hard and resisting. Furthermore, we must admit that a single examination is not often sufficient to insure a correct diagnosis, and for that it is necessary for a long time to observe the progress of the disease, and to make repeated attentive examinations of the diseased parts.

Treatment.—In the treatment of a patient affected with chronic engorgement of the uterus, the task of the physician is first to so arrange, that the effusion already solidified and organized in the walls of the uterus, be susceptible of being re-absorbed, and afterward to remove the continual hyperæmias, so as to prevent a new infiltration of the tissue of the organ. When numerous attempts do not allow us to hope for a satisfactory result from this method, we must at least endeavor to combat the most distressing symptoms.

Of all the methods of treatment proposed by different authors, we recommend the following as being the most certain:

We commence the treatment by the application of five or six leeches to the vaginal portion, and it is sometimes necessary to repeat the application ten or twelve times at intervals of five or six days. We are also in favor of liquefying the exudation by the methodical application of heat in the form of warm hip baths, repeated twice a day, with vaginal injections and compresses upon the abdomen. From numerous observations, we are convinced that the beneficial results from heat are increased when a solution of iodine or bromine is added to the water used for baths and injections. Such a mixture is found, for example, in some natural springs; but we may, however, with advantage substitute an artificial analogous preparation. We heat this liquid—which may at pleasure be more or less concentrated—to a temperature of 86° to 95° Fahrenheit; then we plunge into it a sheet folded several times, which serves for the application

of heat to the abdomen, where it is left from half an hour to an hour. If the fundus of the uterus rises above the pubes, we coat the hypogastrium with tincture of iodine or we make frictions upon it with an ointment containing iodide or bromide of potassium. Interiorly we recommend the prolonged use of gentle laxatives, especially the alkaline mineral waters of Marienbad, Kissingen, Karlsbad, etc. We have never obtained any good results from the other remedies recommended in like cases, as, for example, mercurials, calendula, conium, etc. On the contrary, we have used with benefit, even to the local affection, iron, and especially the iodide of iron, whenever the symptoms indicate an insufficient hæmatogenesis.

After having for three or four weeks given the laxative mineral waters (which may be administered simultaneously with the therapeutic use of iron), we pass to the chalybeate waters of Brückenau, Bocklett, Schwalbach, Franzensbad, etc., and to make the transition, we commence by giving for some time a mixture of one part of the chalybeate water with two of the alkaline. When the patients are in position to do it, we order them to stay for some months at one of the baths in question, where they should both drink and bathe in the water. Kreuznach and Kissingen are the mineral springs we prefer in all such uterine affections. [There are numerous iron springs in this country answering the desired end very perfectly. At Flushing, some six miles from New York city, there is a ferruginous spring, remarkably rich in iron, and which has enjoyed a local reputation for nearly a century. We understand that it will speedily be fitted up for bathers, as well as for those who wish to drink of tonic waters. It has been suggested to the proprietor to keep this water on draught and effervescing, by the addition of carbonic acid gas, and during the coming season it may be thus obtained in this city, and also by the barrel, for bathing, at a reasonable price.]

In treating this disease in the manner indicated, and with the all-necessary perseverance and foresight, we shall at least obtain a sensible amelioration in the state of our patients, if we do not succeed in obtaining for them a complete and durable cure. When we have only obtained an amelioration, and entertain but little hope of cure, we should still endeavor to moderate such painful

symptoms as may prove obstinate, by means of a well-directed symptomatic treatment.

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§ 3. *Abscess of the Parenchyma of the Uterus.*

The formation of an abscess consequent upon acute metritis is very rarely observed unless the uterus be in the puerperal state. We only remember a single case; it was in a young woman, in whom, after a sudden suppression of the menses, violent metritis supervened, which we treated for about a week in the manner above described, without producing any diminution of the very intense pains. On the contrary, the sensibility of the uterine region increased more and more, chills were frequent, and a tumor was developed on the right side of the horizontal portion of the pubes, nearly of the size of a hen's egg, tolerably resistant and clearly defined. On the twenty-second day of the disease, there suddenly appeared symptoms of a violent and very extended peritonitis, from which the patient succumbed on the thirty-first day. The necroscopy showed that the cause of death was the rupture of an abscess of the size of a goose's egg, situated on the right superior portion of the body of the uterus, the pus from which had opened a path through

the external layers of the substance of the uterus and of its peritoneal envelope.

There has been frequent occasion to observe the formation of an abscess in the walls of the uterus during the gravid and puerperal state. But here we cannot help doubting that numerous accumulations of pus or putrescent matter which have been placed in this category are really formed in consequence of an inflammation of the parenchyma of the womb. We should rather think that they had been caused by the purulent or putrid decomposition of a clot in a vein, or in a lymphatic vessel.

Abscesses of the uterus, in different cases, have emptied their contents by different ways. We have observed cases where the abscess has opened spontaneously, others where an artificial opening has been made for it into the uterine cavity, into the rectum or the vagina, and others again where the perforation has penetrated the abdominal cavity, the bladder, or even through the abdominal walls, when previously these have been united to the uterus by adhesions.

We do not consider the diagnosis of abscess of the uterus as certain, except when, after having observed the symptoms of an acute metritis, the presence of a tumor rapidly increasing in volume, first hard, and afterward presenting fluctuation, can be demonstrated with certainty through the inferior wall of the vagina, or the anterior wall of the abdomen. But, even in such cases, we must allow that, in consequence of different extenuating circumstances, the diagnosis may remain doubtful, and that these doubts cannot be removed until the pus shall have spontaneously opened an exit, or until its presence is demonstrated by an explorative puncture, which, in all cases, should not be made without great precaution. When the disease has been recognized, the prognosis ought always to be declared with the greatest reserve. For we can never with certainty say beforehand, whether, and in what direction, the pus will open for itself an issue, and what influence the purulent secretion, sometimes of long duration, will exert upon the general organism of the patients. The treatment of abscess of the uterus consists in the methodical application of heat by hot baths, by injections into the vagina, and by cataplasms on the

abdomen; and also in combating by local bleedings, the symptoms of an acute inflammation which ordinarily has not yet ceased, etc. And if the abscess is situated in a place accessible to the bistoury, this instrument should be employed for the purpose of opening this purulent focus.

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§ 4. *Inflammation of the Mucous Membrane of the Uterus.*

Like every organ covered with a mucous membrane, the uterus is, upon its internal surface, exposed to those catarrhal and croupy inflammations which generally affect mucous membranes. The former are ordinarily observed in the non-pregnant state while the latter are more often observed in the puerperal condition.

A. Acute Catarrh of the Uterine Mucous Membrane.

Pathological Anatomy.—The principal changes take place in the internal surface of the organ. The mucous membrane presents, principally in the portion which lines the uterine cavity, properly so called, an intense redness which is often spotted, the red places corresponding to the artificial openings of the utricular glands, which are surrounded by a fine capillary network, very strongly injected. Furthermore, the mucous membrane is very œdematous, softened, thickened, and projects in some points into the uterine cavity. It is easier than in the normal state to separate from the subjacent tissue, larger or smaller shreds; and besides that, different portions of more or less extent are found deprived of their epithelium.

The uterus, the walls of which, in its normal state, are found covered only with a thin layer of limpid and viscid mucus, contains, when the disease has attained its culminating point, an extraordinary quantity of a liquid, sometimes yellowish and transparent, sometimes more reddened by blood, and sometimes like cream. When the secretion presents this last appear-

ance, it results from the mixture of a quantity of corpuscles of mucus and epithelium separated from the mucous membrane.

Ordinarily, the acute catarrh of the mucous membrane of the uterus is accompanied by a congestive swelling of the muscular substance of the womb, and most generally, it is possible, particularly in the most internal layers of the organ, to see with the naked eye, that the vessels are gorged with blood. There ordinarily results from it an infiltration and a softening which are much greater in the layers of the parenchyma of the uterus nearest to the mucous membrane. Hence, these alterations of tissue which are characteristic of acute parenchymatous metritis ordinarily accompany the catarrh of the mucous membrane when this has obtained a high degree of intensity.

In the acute stage of catarrh the mucous membrane of the cavity of the neck generally presents the redness, the softening, and the swelling in a more feeble degree, and most frequently the alterations in the tissue of the uterine parenchyma which have been above indicated, are indeed less marked, although a slight tumefaction of the neck and of the vaginal portion are rarely absent. In the great majority of cases, the viscous, glassy mucosity, secreted by the follicles of the cervical cavity, loses its consistency; it becomes more liquid and mingles more easily and more intimately with the secretion proceeding from the uterine cavity, properly so called.

The vaginal portion, the mucous membrane of which is ordinarily tinged with a deep red, and generally participates in the inflammation of the uterine mucous membrane, is usually somewhat tumefied, and its papillæ stand out further. The uterine orifice, ordinarily contracted in virgins, is transformed into a narrow round fossa, and in all its circumference is deprived of its epithelium.

As **complications** of acute catarrh of the uterine mucous membrane, we meet with catarrhal inflammation of the mucous membranes of the vaginal canal, the urethra, the bladder, and the rectum.

Symptoms.—The symptoms of a congestion of the organs of the pelvis, ordinarily precede acute catarrhal inflammation of the mucous membrane of the uterus. The patients complain at

this period of a disagreeable sensation of tension about the sacrum and both inguinal regions, and of a heat and fullness in the pelvis, with a frequent desire of urinating. The urine is then ordinarily of an intense red color, and deposits a sediment which is either mucous or formed of uric acid. These symptoms are often accompanied by an abundant diarrhœa. Little by little the pains are concentrated around the uterine region, which is very tender on pressure, without our being able, on examination, to discover through the abdominal walls any augmentation in the volume of the uterus. About the fourth or sixth day, or sometimes earlier, a flow, more or less copious, from the genital parts is observed—a hypersecretion of the mucous membrane of the uterus. The secreted liquid is at first not dense, almost limpid, slightly viscous, and it leaves upon the linen stiffened and clearly defined spots. At length, it usually becomes yellow. It sometimes presents slightly bloody striæ; and about the tenth or twelfth day it takes the creamy consistence mentioned above. Thus it continues until either spontaneously or after the application of proper remedies the hyperæmia and the softening of the uterine mucous membrane, which were the cause of the increased secretion, have diminished, and with them the fall of the epithelium.

Here, however, we ought to remember, that the liquid flowing from the external genital parts will not present the above mentioned properties characteristic of the uterine secretion, except when it shall have undergone a modification by the admixture with a considerable quantity of vaginal mucus. To determine whether the mucus flowing from the genital parts is secreted mostly in the uterus or in the vagina, we must examine its chemical reaction. Is the liquid alkaline? The secretion then proceeds from the uterus. But the secretion from the vagina is ordinarily acid. Although this characteristic is not entirely constant, we can, however, generally employ it in practice. But if we wish to examine more accurately the uterine secretion, it is indispensable to expose the os tincæ by the speculum. Upon the same occasion, after having previously wiped the vaginal portion, we may observe the deep redness of its mucous membrane, the swollen ring which this forms around

the os tincæ, the loss of epithelium, and the excessive development of the papillæ of the mucous membrane.

Progress.—The progress and duration of the disease are very variable. In many cases, when the affection passes to the chronic state, the end of the acute period cannot be determined with certainty; but when this unfortunate issue has not taken place, the acute catarrhal inflammation of the uterus terminates almost always in two or three weeks. Little by little, the pain caused by the congestion of the uterus and its appendages diminishes, and finally disappears altogether. The quantity of the mucous flow diminishes also. Little by little it loses its creamy consistence. It becomes liquid and transparent, and often at this stage we find it mingled with a considerable quantity of the vitreous mucus—in itself more consistent—of the mucous membrane of the neck. Toward the end of the disease, the discharge takes place in small quantities and at continued increasing intervals, sometimes even many hours apart. The disease is often terminated by the appearance of the menses; but often also the congestion which has caused it induces a new exacerbation when the acute stage passes into the chronic, which we shall hereafter describe in fuller detail.

Diagnosis.—The symptoms caused by the acute catarrh of the uterus are so characteristic, that it cannot easily be confounded with any other disease of the uterus. It is only in cases where an extraordinary congestion of the organs of the pelvis precedes the inflammation of the mucous membrane, or where the disease spreads more deeply into the substance of the uterus, that we are liable to encounter difficulties in deciding whether we have to do with a simple catarrh or with an acute parenchymatous inflammation. In such a case, doubts as to the diagnosis would be of small importance, for the treatment of these two diseases, which under the circumstances so closely resemble each other, is very much the same.

Etiology.—Acute catarrh is the consequence of an external cause, acting directly upon the womb, and there producing a hyperæmia. Such causes are the influence of cold, a violent coitus performed under strong excitement, the contact of the vaginal mucous membrane with the blenorrhœal secretion from the male urethra, etc. Acute catarrh also accompanies certain

general diseases in which a violent fever is observed. Hence, it is not rare in the course of acute exanthemata, of roseola, scarlatina, small pox. We have ourselves had frequent occasion to observe the disease in the most marked form, upon the cadavers of young girls of six or eight years old, who had died from small-pox or scarlatina. We see it, moreover, in patients who have succumbed to typhus, cholera, and to catarrhal and dysenteric affections of the intestines. Indeed, it is not rare for an acute catarrh of the urethral mucous membrane to be transmitted to the uterus through the vagina. Although some authors have stated that the disease in question sometimes results from the suppression of certain habitual secretions, as, for example, sweating of the feet, etc., or from the sudden healing of chronic exanthemata, we must acknowledge that we have never observed any case which would confirm this opinion. The appearance of the disease in the circumstances mentioned, was surely susceptible in each case of another exploration. We think, therefore, that to admit an acute **metastatic** catarrh, is to adhere to an erroneous opinion which cannot be justified. We should also observe that in the course of certain general chronic maladies; scrofula, tubercles, etc., for example; acute catarrh of the uterus is not observed except where the general disease is localized in this organ: or where it occasions a disturbance in the circulation which has for its consequence a violent hyperæmia of the womb. We must also mention, that in females subject to amenorrhœa, or to deficient menstruation, it is not rare to observe an acute catarrh, which is, so to speak, a substitution for the menstrual discharge. It is an established fact, that the alterations of tissue which are observed in the uterine mucous membrane before the menstrual flow, much resemble, if they are not identical with, those which accompany the acute catarrhal inflammation. When the menstrual congestion of the uterus does not attain the degree which is observed in normal circumstances, it does not burst the vessels, but produces a hyperæmia which, if it be prolonged for some time, is attended by all the symptoms of acute catarrh.

Treatment.—Very often acute catarrh of the uterus cures itself without the intervention of art. This, however, by no means authorizes the neglect of the malady. If this class of

cases were less frequent, we should more seldom meet with those distressing uterine leucorrhœas, which exhaust the powers of endurance of both the patients and the physician, and which often leave behind them such serious disturbances.

We must never fail, in the treatment of this disease, to regulate the regimen of the patients. Complete mental and corporeal rest, entire abstinence from sexual pleasures, nourishment easy of digestion, diluent and acidulated drinks, and above all, the utmost cleanliness of the genital parts, are entirely indispensable. For this purpose, it is necessary to order daily one or two hip-baths, and, if possible, warm vaginal injections. If the disease is accompanied by an excessive sensibility, and by a tumefaction of the womb, or indeed if there are doubts whether the case is not one of mild parenchymatous metritis, we should have recourse to local bleeding, for which we prefer the application of a few leeches to the vaginal portion. In such cases, warm cataplasms, applied upon the uterine region, and mild saline purgatives, will also be of benefit. If the progress of the disease becomes slower, if after the diminution of the inflammatory phenomena the secretion becomes more abundant, creamy and purulent, we must then add some slight astringent to the water used in the injections, as for example a concentrated solution of the nitrate of silver, the perchloride of iron, sulphate of zinc, alum, tannin, etc. The erosions which are sometimes observed upon the surface of the mucous membrane ordinarily heal in a few days, by means of slight cauterizations with a solution of nitrate of silver, which should either be applied with a fine pencil, or poured into a glass speculum, and left somewhere about five minutes in contact with the diseased portion. It is superfluous to state that catamenial troubles, while they produce or attend uterine catarrh, should never be neglected. It is of course necessary to employ the proper remedies against the catarrh of the vaginal and urethral mucous membrane, which is often observed at the time. It is also indispensable to attend to any constitutional malady which may be the cause of the uterine affection. As to the catarrhal inflammation produced by the **blennorrhagic contagion**, it is now agreed, that so long as the disease is in the acute stage, its treatment does not differ from that which we have just indi

cated. This will be better understood if it is considered, that in the majority of cases, a certain diagnosis of blennorrhagic catarrh of the mucous membrane of the female genital organs is impossible. For further remarks on this subject, we refer to our description of the blennorrhœa of the mucous membrane of the vagina and urethra.

B.—*Chronic Catarrh of the Uterine Mucous Membrane.*

Pathological Anatomy.—Considering the frequency of this disease, it is not surprising that there is often occasion to study the anatomical alterations which characterize it. Leaving aside the cases where chronic catarrh accompanies other diseases of the uterus, and considering only those in which it constitutes a separate and independent disease, we must, in the first place, consider the anatomical alterations observed in the mucous membrane. On laying open the cavity of such a uterus, we are at once struck by its great dimensions, as well in the longitudinal as in the transverse diameter, and next by the great surface of the mucous membrane. This appears in the cavity of the uterus, properly so called, either smooth, or rough like velvet. In the first case it is of a pale yellow or livid, showing in places a slaty grey color: while in the last case, it ordinarily presents a bluish red color, extending sometimes over its entire surface, while at others it is confined to a few scattered patches. Frequently the mucous membrane has in many places lost its epithelium, and where this has remained, we often find the **pavement** instead of the **cylindrical** epithelium. Ordinarily the enlarged cavity of the uterus is filled with a considerable quantity of creamy or purulent mucus, which, after a prolonged stay in the womb, becomes more liquid, slightly yellowish, and transparent. At first, before and after menstruation, this mucus, which to microscopic examination ordinarily shows only corpuscles of mucus and the epithelial cells mixed with it, is of a slightly reddish color, and by a careful examination, the corpuscles of blood which are found there, in greater or less numbers, are easily recognized.

The mucous membrane of the cavity of the neck, exhibits a notable difference from that of the body of the uterus. It is

ordinarily, but not always, paler, more highly tumefied, its transverse folds project further, and in the fossæ thus formed, numerous follicles may be discovered of the size of a millet seed to that of a pea, inclosing translucent contents, and known under the name of the **eggs of Naboth.** The secretion of the cavity of the neck is also notably different from that of the mucous membrane of the body of the uterus. In fact, it is vitreous, transparent, very consistent, and fills the cervical cavity, in the manner of a plug, which adheres strongly to its walls.

The alterations of the uterine mucous membrane which we have previously described, extends generally even to the mucous membrane of the vaginal portion, where, beside the redness, the softening, and tumefaction, which are usually most distinct, the attention of the physician will be demanded by a waste of substance, produced by erosions, excoriations, and ulcerations.

If in the course of a chronic catarrh, engorgement of the walls of the uterus is not developed, they are found at the autopsy thinner, more friable, and sometimes contain more blood. The veins, especially, are very distended, and when they are cut, remain widely open. The chronic catarrh of the uterus ordinarily extends to the neighboring organs; it particularly affects the mucous membrane of the vagina, the ovaries; more rarely that of the urethra or the bladder. It almost constantly accompanies all profound alterations of the uterus, as, for example, chronic engorgement, fibrous bodies, and cancerous deposits. It is also often found associated with maladies of the other sexual organs.

Symptoms.—The most important and striking symptom of chronic catarrh of the womb, is the mucous flow from the genital parts. We have already described the physical and chemical properties of this mucus, and we shall only refer here to the fact that a viscous, gently flowing, glairy mucus, always indicates an affection of the mucous membrane of the neck; while, if the secretion is purulent and creamy, the application of the speculum is always necessary, to know whether it really comes from the uterus, or is caused by a vaginal leucorrhœa. In these cases, where the flow is very copious, and of a corro-

sive nature, where it produces erythemata and excoriations upon the internal surface of the thighs, we shall very rarely be deceived if we conclude that the greater part of this mucus is the product of a hypersecretion of the mucous membrane of the vagina.

In a great number of cases the symptoms of an acute catarrh of the uterus precede leucorrhœa, properly so called, but the disease is often developed little by little, without these precursory symptoms; and the hypersecretion of the uterine mucous membrane increasing from month to month, without being accompanied by any other symptom painful to the patient, is the first indication of it: but when the disease lasts for a longer time, when the mucus secretion is very abundant, and in consequence of some obstacle hindering its exit, accumulates in the uterus, the walls of the organ are greatly distended and the patients from time to time complain of pains radiating from the sacrum toward the groin and the pubes, and becoming more intense just before the appearance of the menses. The irritation of the nerves of the uterus which is observed in such circumstances, sooner or later gives birth to sympathetic phenomena in very distant organs. The most important of these are cardialgic pains, troubles in the digestion, particularly an obstinate meteorism, constipation, and often repeated vomitings. These troubles of the digestive functions and the waste of protein substances occasioned by the copious mucous secretion bring on, sooner or later, other alterations in the function of assimilation and in the hæmatogenesis. These are recognized by the well-known phenomena of anæmia and hysteria, and in serious cases, after the long duration of the disease, by a premature disappearance of the strength, a sensible emaciation, in a word, by a weakening and marásmus of the entire organism.

When the disease follows this course, the menstruation also generally presents notable alterations, the return of the catamenial flow becomes irregular, the sanguineous secretion is very feeble, or on the contrary very abundant, and besides, as we have said, is often accompanied by an excessively severe pain. If a great quantity of mucus accumulates in the uterine cavity, or if the chronic catarrh is attended by a thickening of the walls of the uterus, resulting from hyperæmia of long duration, we can

sometimes, by palpation above the pubes, recognize the enlarged, but little sensitive womb; this symptom will, however, be absent in a great number of cases. The finger introduced into the vagina, finds the vaginal portion ordinarily thickened, its mucous membrane softened, easily sliding upon the subjacent parenchyma. This method of exploration often diagnosticates the ulcerations which are seated around the uterine orifice.

The introduction of the sound into the cervical canal is often difficult, in consequence of the swelling of the mucous membrane and the great protuberance of the transversal folds. But when we have succeeded in introducing it up to the fundus of the uterus, we almost always find that its cavity presents an increase of one to two inches or more.

The softening and the vulnerablity of the uterine mucous membrane explain the fact, that in such cases, the use of the sound is sometimes followed by slight hæmorrhages.

On examination with the speculum, we find the vaginal portion very highly colored and even of a livid red, if the disease has continued for a long time. In those women who have had several children, the borders of the uterine orifice are ordinarily tumefied; the anterior especially descends the most, and we rarely fail to discover the excoriations and ulcerations which we have frequently mentioned. From the os tincæ we ordinarily see projecting a mucous core of a pearly grey, or a yellowish white, firmly adhering to the vaginal portion and resisting repeated rubbings with a pledget of charpie. By the side of this, the creamy or puriform uterine mucus, described above, flows, often drop by drop, from the orifice.

In the majority of cases, examination by the speculum enables us to recognize the existence of a hypersecretion of the vaginal mucous membrane.

Progress, Termination and Prognosis.—Chronic catarrh of the uterus is a disease which may last for years without involving the least danger to the patient. This is the reason why in the first stages the disease is often misunderstood by the patients themselves. This especially occurs when the flow is not very copious; as also when there is no bad odor; when it is not of a corrosive character; or when its quantity, as is often the case, diminishes after some little time, which makes the patients think they have

had a spontaneous cure. But when the disease affects distant organs, or the whole economy; or when the local symptoms, the pains, the catamenial troubles, have attained an insupportable intensity, the patient then has recourse to the physician. She sometimes comes to consult him about a very different symptom, and it is often by chance or from recalling analogous facts, that the physician recognizes in the uterine leucorrhœa the origin of all th esymptoms complained of. Unfortunately, the favorable time for the radical cure is ordinarily past, and we may esteem ourselves fortunate if we can but moderate somewhat the hypersecretion of the uterine mucous membrane, and moderate its consequences. As for ourselves, we do not remember a single case where we have been able completely to cure an abundant uterine leucorrhœa of several years' standing. We have already said that after a long duration, the severer forms of this malady may become dangerous to the general organism; and many women whom we have been called upon to treat, had to attribute to the neglect of the disease a bodily and mental debility, which they would keep for the rest of their days, or hysterical attacks, which deprived them of all enjoyment of life.

Etiology.—As we have observed above, chronic catarrh of the uterus is often developed in consequence of acute inflammations of this organ, first, from acute catarrhal inflammation of the mucous membrane, and afterward in consequence of parenchymatous metritis. The puerperal state and the inflammations of the uterus, which are often declared during the parturient state, are also one of the most important causes of the malady in question. Thus, it sometimes happens, that the secretion of the lochia passes into the state of a permanent hypersecretion of the uterine mucous membrane, which easily happens, especially when in the early periods after the confinement the patient commits some errors of regimen.

Very often the abuse of the venereal act and the congestion of the genital parts thus produced, are the causes of the disease. Hence, it is often found in young married women; and the disease known under the name of the **fluor meretricalis,** which is so commonly observed in public women, is explained in the same manner.

In many cases, the chronic catarrh of the uterus is the consequence of another alteration in the texture of the womb and its appendages; thus it is scarcely ever absent in submucous fibroids, polypi, cancerous infiltrations, chronic engorgements of the womb, different sorts of tumors of the ovaries, etc. It is also frequently observed as a consequence of chronic diseases of the blood, or of affections of the distant organs, occasioning a continued congestion in the organs of the pelvis. We often see it accompanying chlorosis, scrofula, tuberculosis; chronic diseases of the lungs, particularly emphysema; organic diseases of the heart, principally stenosis and imperfections of the mitral valve; fatty infiltration of the liver; and chronic tumors of the spleen. Certain external causes, as, for example, unhealthy and damp dwellings, a sedentary life, etc., appear to have some influence in the production of this malady.

[Most especially have we noticed chronic catarrh of the uterine mucous membrane in connection with, and apparently dependent on, the various chronic diseases of the air-passages, particularly in bronchitis and laryngitis. Not unfrequently there seemed to be a sort of metastasis of the disease, so that when the bronchial discharge was profuse, there were little or no leucorrhœal exudations, and *vice versâ*. In one case it alternated again with acute dyspeptic symptoms, going through the three phases with more or less regularity. In this instance there was great spinal irritation, and all of these complaints seemed to be but symptoms of this original trouble; for not till the spine was well covered with Croton oil or tartar emetic pustules, was any permanent relief found for these vacillating and debilitating difficulties. It is worthy of mention, the more so as little regarded, that leucorrhœa is one of the most debilitating accompaniments of phthisis pulmonalis, not unfrequently as disastrous in its results as the night sweats, against which so much medication is exerted, while the leucorrhœa, if recognized, is neglected.]

Treatment.—Different gynecologists have latterly expressed very divergent opinions upon the treatment of chronic catarrh of the uterus. While some of them are decided for internal remedies, intended especially to overcome the consequences of the catarrh, there are a considerable number who do not expect a satisfactory result except from local treatment. Experience

has taught us that neither of these extreme opinions is entirely correct, and that a happy result is best secured by uniting both methods. It would lead us too far if we should here examine in detail all the remedies and all the methods which have been recommended, and we will content ourselves with making known to our readers the procedure which, in the course of our practice, has appeared to us the most sure, and which has led us the most quickly to the desired result. So soon as the subjective and objective symptoms demonstrate the presence of a congestion and of a hyperæmia of the womb, if at least the general health of the patient is not a contra-indication, we commence the cure by the application of several leeches upon the vaginal portion of the uterus. We repeat the application two or three times, according to circumstances, at the same time, by mild purgatives, for some time repeated; as, for example, by making the patient drink during several weeks the saline mineral waters of Karlsbad, Marienbad, Kissingen, Freidrichshall, etc., to which we give the preference, we try to obtain a diversion through the digestive canal: along with that we combat the hyperæmia and hypersecretion of the mucous membrane of the genital organs, by astringent injections into the vagina, and hip-baths. For very sensitive patients, disposed to chills, we at first employ for this purpose warm water, the temperature of which is diminished a few degrees every two or three days, in such a manner that finally the water used is perfectly cold. Then we add some astringent, as, for example, a solution of the perchloride of iron, or a decoction of oak bark, or rhatany, etc. We, however, prefer the first of these remedies. The **globules martiaux** (tartrate of iron and of potassa) or the protoxide of iron added to hip-baths, will also render good service. [In this state of the disease we have found more benefit from the internal administration of the ferrocyanuret of potash given in the following:

℞ Potassii ferrocyanureti . . . ʒiv.
Aquæ cinnamomi. . . . ʒij.
M. terendo.

Twenty drops to be taken three times a day, and be increased to a teaspoonful if necessary.]

If the cavity of the neck is the part principally affected, which will be recognized with certainty by the character of

the secretion, we have immediate recourse to cauterization of the cavity. Has the patient complained but for a short time, and does the disease present but a feeble intensity? We employ then, for this cauterization, a brush of badger's hair dipped in a concentrated solution of nitrate of silver. In the contrary case we introduce into the cervical cavity a piece of lapis infernalis, which we leave for two or three minutes. We repeat these cauterizations every five or six days until a notable diminution in the secretion authorizes the conclusion that there is an amelioration in the condition of the patient; then it is sufficient to make a cauterization every twelve or fifteen days. If the symptoms indicate a catarrhal inflammation of the mucous membrane of the body and of the womb, and if, as is often the case, the procedure which we have described is not sufficient to effect a cure, we recommend the cauterization of the uterine cavity by means of an armed porte-caustic which is introduced up into the cavity of the womb, or by means of astringent injections (a solution of nitrate of silver, of the perchloride of iron, sulphate of zinc, etc.) In general, we prefer the first procedure, because it is not so often as the latter followed by painful uterine colics, or by slight metritis. [It is in view of the painful, and sometimes apparently dangerous symptoms here referred to by the author, that we have now entirely given up the use of liquid injections into the cavity of the uterus, and have substituted for them ointments of various kinds, which, although made of the same medicaments, we have never found to be followed by either colic, metritis, or any painful or dangerous sequelæ. This method of topical medication has been previously mentioned at page 66, to which we direct the attention of the reader. It might be well here to remark further, that one great reason for the want of success complained of by many, is the inferior quality of the nitrate of silver employed by them. We use several varieties; first, that sold as "impure," which possesses but very little cauterizing property—and at best is very superficial in its effects; secondly, that sold as pure, which is far from being so, but which is small in diameter, and also quite friable, being thus quite useless from brittleness where a long piece is wanted to pass quite through the cervix uteri; thirdly, pure crystals of the nitrate of silver melted and run into molds of larger size

than the ordinary sticks of caustic, rounded at one extremity, about an inch and a half long, and weighing nearly a drachm each. The cauterizing power of these is quite considerable, so that latterly we have but rarely required the potassa cum calce, the acid nitrate of mercury, or any of those, not easily managed, and otherwise objectionable caustics. Furthermore, from their increased size, they will, without breaking, enter up to the fundus of the uterus, even if the canal is somewhat constricted and tortuous.]

If the malady has not already attained an advanced stage, and there is no complication opposed to a cure, the use of the remedies indicated, for six or eight weeks, will ordinarily suffice to obtain at least a sensible and durable amelioration.

Fig. 39. Curette of Recamier.

The curette recommended by Recamier* to remove the granulations which are developed in the uterus is an instrument based upon an entirely erroneous theory, which takes from it all practical utility.

Among the complications accessible to treatment, and claiming the attention of the physician, are chronic engorgement of the walls of the uterus, ulcerations of the vaginal portion, and leucorrhœa of the vagina. As to the treatment, we refer to the corresponding chapters of this work, premising the observation, that those complications often keep up the leucorrhœa of the uterus, and their cure produces, in many cases, an amelioration of the disease which they accompany.

We have already mentioned that frequently local treatment does not produce happy results, except when it is accompanied by other treatment chosen in reference to the general state of health of the patient. In this relation, the observation of certain hygienic rules must ever form the basis of the chief hope of the physician. A short residence in the country, moderate exercise in a fresh and pure air, short trips, light and nourishing food, abstinence from stimulating and spirituous liquors; finally, the regularization of the genital functions of the patient (and here we by no means enjoin a complete abstinence) will surely contribute very much to the cure

* M. Nélaton, however, employs it to cure the **uterine fungosities**, and it

or to the amelioration of this distressing disease. When the symptoms of anæmia or hysteria accompany chronic catarrh of the uterus, we should seek to combat them by the persistent use of preparations of iron, or by the employment of baths and drinks, the mineral waters of Franzensbad, Brückman, Schwalbach, etc. The baths of protoxide of iron will also render valuable aid. On the contrary, the patient in whom the hyperæmia of the uterus and its appendages is accompanied by troubles in the abdominal circulation caused by the engorgement of the liver or the spleen; and those patients in whom derangement of the digestive functions resulting from catarrhal irritation of the intestinal mucous membrane is one of the most striking symptoms, might expect happy results from the waters of Karlsbad, Marienbad, Kissengen, Homburg, etc.

When the functions of the skin are perceptibly deranged, or when the most important symptoms are troubles having reference to the nervous system, under the different forms of hysteria, we advise a prolonged stay at the sea-side, or at some hydropathic establishment.

Finally, we ought to mention that we have never obtained any results from the employment of certain remedies warmly recommended for the treatment of chronic catarrh of the uterus, as, for example, iodine and its different preparations, the balsam of copaiba, rhatany, catechu, kino, etc.; and we are firmly convinced that the use of these last remedies may be entirely renounced in cases where the treatment shall not have conducted to any satisfactory result.

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his extensive practice he has always obtained good results from it; for the abrasion of an almost insignificant part of the fungosities ordinarily suffices to arrest the abundant hæmorrhages which, during many months, were repeated at short intervals. It is, says M. Nélaton, a fact which he cannot explain, but which is so striking that no one can deny it. We have ourselves seen, in the practice of M. Nélaton, a patient upon whom the surgeon made the abrasion of the uterine fungosities with the curette of Recamier, and the result was such as M. Nélaton had announced to us. See, in particular, the thesis of M. Ferrier, cited in the bibliography.—*Note of the French translators.*

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Art. IX.—Dropsy of the Uterus, and Collections of Air in this Organ.

Pathological Anatomy and Etiology.—After the description of chronic catarrh of the uterus naturally follows that of the accumulation of mucus within this organ, which constitutes the disease known under the name of dropsy of the uterus, or of **hydrometra.** This malady is always the consequence of some obstacle stopping the flow of the mucus, which, being secreted in a great quantity, accumulates little by little in the interior of the uterus. It cannot take place except when a previous alteration in the texture of the organ, or a defect of conformation of the neck, produce a relative or absolute impermeability of the canal. Consequently it is never met with alone, but is always complicated with other diseases of the uterus, and often occasions pains of more or less severity. Hence, it is not rarely observed in cases of flexion of the uterus. At the autopsy of aged women, we often meet it in a slight degree, where the simultaneous presence of erosions,

catarrhal ulcerations, and the senile disappearance of the neck are often the cause of atresia of the canal. In the same manner a sub-mucous fibroid or a polypus, when it fills the cervical canal, may prevent the flow of the uterine secretion, and result in its retention in the superior portion of the organ. It may also happen when there is a considerable tumor developed externally to the uterus, and making this organ to deviate from its normal position, pressing the neck against the walls of the pelvis. We have once observed such a case, where a cyst of the left ovary, of the size of a child's head, had occasioned such a collection of secreted fluid in the uterus, that this organ could be felt like a tumor of the size of the fist, and presenting a very sensible fluctuation above the horizontal ramus of the right pubes.

It is obvious that the presence of dropsy of the uterus is not possible, except when the flow of the menstrual blood has entirely ceased, either because of the advanced age of the patient, or, if the woman is still young, when there had been a complete amenorrhœa. In fact, it is easy to see that the same obstacle which opposes the escape of the mucus will not permit the escape of the blood effused into the uterine cavity. Hence there results, not a dropsy of the uterus, but a collection of blood in the organ.

As for the watery appearance, and the slight density of the mucus collected in the uterine cavity, we see analogies in cases where other organs, invested with a mucous membrane, as, for example, the Fallopian tubes, the gall bladder, the lachrymal sac, etc., when they are more or less distended in consequence of a stoppage of the free flow of their secretions, are filled with a serous liquid. The cause of this alteration of the secretion is perhaps in part a more limpid, more aqueous production of the mucous membrane itself; still it is not impossible that the solid elements ordinarily mingled with the secretion (corpuscles of mucus, epithelial cells) are precipitated upon the walls of the organ, and thus account for the aqueous state of the liquid. Furthermore, we ought not to forget, that in like circumstances the mucous membrane undergoes a considerable thinning, and that after the complete disappearance of the gland, the cellular tissue which forms its constituent mass is so identified with the

submucous cellular tissue, that the organ becomes, so to speak, a capsule covered with a serous membrane (fibro-serous).

The quantity of mucus ordinarily collected in the uterine cavity varies from thirteen drachms to seven ounces; but after a continuation of the disease it may attain to one to two pounds. The cases in which the uterus has been seen distended by the accumulation of liquid, so as to attain the size of the last period of pregnancy, are extremely rare. The more the uterus extends in size the more the thinness of the walls increases, and sometimes even the entire organ has been seen transformed into a bladder, with very thin walls, and presenting a sensible fluctuation.

It appears that under certain circumstances which are not yet exactly known, the liquid collected in the uterus undergoes decomposition. Hence results the formation and collection of a greater or less quantity of gas. It is to this state of the uterus that the name of **pneumo-hydrometra** is given.

Symptoms.—The most important and constant phenomena that are observed in dropsy of the uterus, are enlargement of the womb, more or less sharp pains, and the suppression of the courses, if they have not already been naturally suppressed.

The enlargement of the uterus ordinarily takes place little by little, and so long as it does not attain a great size, the patients do not perceive it at all. Cases are very rare in which at the end of some weeks or months such a quantity of liquid is collected in the uterus, that this organ projects above the os pubis in the form of a voluminous tumor, and sometimes presents a perceptible fluctuation. The presence of fluctuation depends especially upon the condition of the walls of the uterus, and will be all the more marked in proportion as the thinning which these latter have undergone during distention is more considerable.

This tension and dilatation of the walls of the uterus, consequent upon the collection of liquid, provokes contractions which the patients perceive in periodic pains like those of labor. To these the name of uterine colics is generally given. They ordinarily attain a higher degree in cases where the walls of the uterus have not yet undergone marked dilatation and thinning; and they are especially troublesome when the collection

of the secretion is suddenly augmented during and after any increased congestion about the uterus. Hence it happens that females who have not yet passed the critical age, more frequently suffer from these painful uterine colics, than those of such an age as to be no longer subject to menstrual hyperæmia of the genital organs. When the cervical canal is not entirely impermeable, and when the flow of the uterine secretion is prevented by a simple stricture (from a flexion, a fibroid, or a polypus, etc.) it sometimes happens that the stricture of the cervical canal ceases in consequence of the repeated and intense uterine contractions which tend to dilate it, and that in this manner the secretion collected above the stoppage escapes. The liquid is thus often discharged all at once, and if the uterus contains a large quantity of gas, the flow is accompanied by a very loud noise, like to that produced by the intestinal gas when it escapes from the anus. Thus we treated a woman about thirty years of age, affected with a fibroid about the size of a hen's egg, situated near the internal uterine orifice. She had an infrequent and very scanty menstruation. In her uterus accumulated, from time to time, such a quantity of mucus, that after twelve or twenty-four hours of painful and continued contractions, there often was expelled from ʒx. to ʒxx. with a very loud noise, simulating that of flatus. We once observed this same thing at the moment when we were about to introduce the sound into the uterus to establish a more certain diagnosis. In a second case the dilatation of the uterus by the air which it contained was so great, that the patient considered herself seven months pregnant, which we also thought upon a first superficial examination. The percussion of the abdomen, however, made us change our opinion, and the expulsion through the genital parts of a large quantity of air, with a sonorous explosion, which took place some days afterward, during the night, and woke up the patient from her sleep, soon proved that we were not deceived in our diagnosis.

Dropsy of the uterus is almost always accompanied by amenorrhœa; and if patients affected with this disease lose occasionally a little blood from the genital parts, it probably only proceeds from the mucous membrane of the cervix, found below the obstacle which prevents the flow of the uterine

mucus. We will also mention here a fact which we have observed in two cases of anteversion of the uterus, that the collection of uterine mucus does not take place but from time to time, and that after its flow the menstrual period may appear once or twice as in the normal state, giving place again subsequently to a transitory amenorrhœa. If the collection of liquid in the uterine cavity attains to a still larger amount, there will be found besides the dilatation of the superior portion of the organ, which is perceptible through the abdominal walls, alterations more or less discoverable by internal exploration. The greater the uterus is, and the higher it mounts from the pelvis into the abdominal cavity, the greater also is the dilatation of its inferior portion, which sometimes presents to the exploring finger a fluctuation—little marked, it is true. The vaginal portion also becomes shorter and shorter, to such a degree that we sometimes find it completely effaced in cases where the impermeability of the canal proceeds from the external uterine orifice.

We will here add that this disease causes sufferings of very various character, by the mechanical obstruction of the functions of the neighboring organs, by sympathetic derangement of the digestion, and by the production of certain pathological conditions of the blood and of the nervous system, among which in the foremost rank are anæmia and hysteria.

Diagnosis.—Dropsy of the uterus may be confounded either with pregnancy, with ovarian cysts, or with habitual retention of urine in the bladder. This disease is distinguished from pregnancy by its long duration, by the increase of the uterus, which takes place during several months or even years, by the possibility of demonstrating the cause of the accumulation of the fluid, and finally, by the absence of all the positive characteristics of pregnancy.

Ovarian cysts, before they have attained any considerable size, are ordinarily situated in one of the inguinal regions; they are not necessarily at this period accompanied by amenorrhœa, and it is indeed rare for this symptom to be observed. They do not produce uterine colics of so distinct a character; they ordinarily lead to a displacement of the uterus to the right or left, and the vaginal portion is not sensibly changed.

Finally, in this disease, the introduction of the uterine sound determines the permeability of the cervical canal and the absence of every obstacle to the flow of the secretion of the uterus. In the use of the catheter, we possess a simple and sure means of distinguishing a dropsy of the uterus from the bladder distended in consequence of a retention of urine. The indications and circumstances we have described, having proved the existence of a collection of liquid in the uterine cavity, it still remains to be decided whether this effusion is formed by a collection of mucus or of blood—whether we have to treat a **hydrometra** or a **hæmatometra.** We infer the first of these diseases if the patient has already passed the critical age, if the extension of the uterus has attained a high development, or if the discharges which may from time to time have taken place, are of a mucous or an aqueous nature. The existence of hæmatometra is, on the contrary, probable when the patient has not arrived at the critical age; when the enlargement of the womb commences with the period of puberty, when it augments at equal periods with all the symptoms which accompany the periodic expulsion of the ovules; and finally, when, by an attentive examination of the genital parts, a complete and often congenital obliteration of the neck of the uterus or of the vagina is recognized.

Progress and Prognosis.—The causes of the disease in question, as we have already described them, lead to the conclusion that its progress will almost always be chronic, often continuing several years. Hence, an answer to the question, "whether in a given case the disease can be cured or not," will always depend upon the curability or non-curability of the disease which has given rise to it. In the examination of the symptoms, we have already had occasion to say that when the disease has a full development, it is not without influence upon the general organism, and that it injures the health by the troubles of digestion, of the circulation and of the functions of the nervous system, which so often accompany it. It may also be mentioned, that in some exceptional cases the liquid collected in the uterine cavity, slowly dilating the Fallopian tubes from the uterus to their abdominal termination, thus find an issue into the abdomen, and give rise to a peritonitis,

which terminates by ascites. Cases are extremely rare in which the distention and thinning of the uterine walls attained to such a degree as to produce a rupture of the uterus, resulting in speedy death.

Treatment.—A radical cure will not be possible, unless we succeed in removing the obstacle which opposes the flow of the collected liquids, as for example, in cases of flexions and the polypi of the uterus. But even when the treatment does not promise such fortunate results, art can still do something to soften the very violent pains which the patients often undergo.

If there exists only a contraction of the cervical canal, and this last is not entirely impermeable, we should seek from time to time, by introducing the uterine sound, to afford an exit to the mucus collected in the cavity of the womb. In a case where the disease was complicated with a retroversion which was irreducible on account of firm adhesions of the peritoneum to the posterior walls of the pelvis, and where the body of the uterus exhibited a dilatation larger than a man's fist, we obtained a discharge of the secretion by the introduction of a piece of prepared sponge which dilated the cervical canal and the internal uterine orifice, in which was also found a stricture. Furthermore, in such cases, we recommend the use of topical remedies adapted to restrain the hypersecretion of the mucous membrane. We may here cite the case of a patient fifty-seven years old, in whom the senile disappearance of the neck of the uterus had caused a stricture of the portion of the cervical canal nearest to the internal orifice. There was such dropsical effusion that the superior portion of the uterus mounted about two inches above the symphysis pubis. By frequent injection of astringent liquids, and finally, by repeated cauterizations of the uterine mucous membrane, by means of the solid nitrate of silver, we obtained such an amelioration, that the uterus no longer sensibly passed beyond the symphysis pubis. All the other resulting symptoms which had before much tormented the patient disappeared almost completely, and this condition continues at the present time, that is to say, nearly three years subsequently to the application of the means in question. If the collection of liquid in the uterine cavity has attained a degree insupportable to the patient, or putting her life in dan-

ger, and the complete occlusion of the neck renders the escape of the liquid by this way impossible, there remains no other hope of cure but in effecting, by the vagina, the puncture of the interior part of the uterus by means of a long and curved trocar. It would then be necessary to allow the canula of the trocar to remain for a long time, or to introduce bougies in order to dilate and keep open the orifice so as to be able, after the cicatrization of its borders, to introduce the topical remedies above recommended for the purpose of moderating the secretion of the uterine mucous membrane. This procedure, the practical utility of which has not yet been put to the proof, surely deserves to be taken into consideration.

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Art. X.—On the Different Forms of Ulcerations of the Neck of the Uterus.

We have already in many places in this work, had occasion to mention the frequency of ulcerous affections of the neck of the womb. Indeed this frequency and the consecutive influence which these affections exert upon the whole organism, render an attentive study of the subject necessary to all gynecologists. And this is all the more indispensable because the different forms of ulceration not only present sensible differences in their symptoms and progress, but they also demand varied methods of treatment.

Let us seek now to characterize more particularly the different forms of ulcerations.

1st. The most simple form of ulceration is that known under the name of **erosion** or **excoriation of the uterine orifice.** It appears as a simple denudation of the epithelium, spreading sometimes over one, sometimes over both lips of the uterine

orifice, thus forming around this opening a semi-circle or a complete circle distinguished by its lively red color and its velvet-like surface, from the neighboring rosy and smooth parts. It ordinarily accompanies acute and chronic catarrhal inflammation of the mucous membrane of the neck and of the vagina, and it ordinarily originates from a softening, and a less strong adherence, of the epithelium, in consequence of the hyperæmic state of the mucous membrane. The rubbing of the neck, against the walls of the vagina, or indeed the act of coition detaches it then from the parts which it covers, and the place which is thus laid bare, constitutes the erosion in question. Kennedy justly compared this affection to the excoriations of the gland of the penis and to the aphthous ulcerations which are not rare in the cavity of the mouth.

It seems to us that an **aphthous form** of erosions of the uterine orifice has been distinguished from other forms of this affection. In the immediate neighborhood of the uterine orifice, or at a certain distance from it, we have repeatedly observed pustular eruptions where the epithelium of the neck formed little blisters of the size of a pin's head to that of a pea. On lightly passing a soft pencil-brush over these pustules the epithelium is easily removed, and there remains a little bright red spot. Sometimes several of these pustules are developed side by side, and the different places deprived of their epithelium continually approximate, and thus form an erosion of greater extent, which often attains very noticeable dimensions by the formation of new vesicles which break, like the preceding.

It is probably this form of erosion which the French and English authors have designated under the name of the **herpetic form,** and which they have regarded as the evidence of a constitutional malady. As we have no reason to think the pustules in question to be herpetic, we think that we must up to a certain point, adhere to the opinion just enunciated. In fact, it is true that in certain cases the disease depends on a defect in the constitution of the blood, even if unrecognized. For although the aphthæ of the mucous membrane of the mouth are often developed in consequence of difficulties of digestion, with individuals who for a long time have been exposed to a cold and humid air, it seems also that similar

causes may sometimes produce the disease we are now studying. We are further confirmed in this opinion by the case of a woman, otherwise in good health, who had for a long time suffered from aphthæ of the buccal mucous membrane, and who at each new eruption also had pustules upon the mucous membrane of the uterine neck. They ordinarily disappeared in a short time after the employment of appropriate remedies, but returned as often as the affection of the mouth, and did not completely disappear until after a visit of several months in the country, with the regular and prolonged use of river baths. As we have already said above, the erosions of the lips of the uterine orifice are almost always associated with a catarrhal irritation and an increased secretion of the mucous membranes of the cervix and vagina. But even when this is not the case, we always observe a more lively color and a sensible softening, if not of the whole of the mucous membrane which covers the neck of the womb, at least of the parts nearest to the orifice, so that it may be reasonably concluded that the fall of these epithelial cells, of which we have spoken, is always caused by a catarrhal affection.

In itself, the erosion of the lips of the uterine orifice has not much practical importance, except from the development it may assume, which we are about to describe in the following paragraphs. But this is really because the erosion, abandoned to itself, almost always degenerates into deep ulcerations of long duration, which at last injure the entire organism, wherefore it is the duty of the physician to give them all his attention, and to seek in season to cure them.

We generally succeed in this after a treatment of four to six weeks. The vagina is, by means of injections of warm water, to be first purified from the secreted matters, which have a more or less deleterious action upon the epithelium of the mucous membrane; and the cure, properly so called, is commenced by a local sanguineous depletion, by means of three or four leeches applied upon the neck. In this manner we moderate the hyperæmia of the mucous membrane which keeps up the erosion, and we thus insure the proper action of the remedies to be subsequently employed. For two or three days after this bleeding, we repeat the warm injections twice a day, and

at the close of that time we expose the neck of the womb by means of a cylindrical speculum, made of glass or porcelain, into the opening of which is to be poured a solution of four drachms of nitrate of silver, of medium strength (one part to twenty-five of water), in such a manner that not only the erosions, but also the neighboring parts, shall remain bathed in this liquid for three to five minutes. Then a tampon of fine wadding is to be introduced far enough to touch the lower two-thirds only of the walls of the vagina while dilating the superior part of the canal, in such a manner as to prevent as much as possible all chafing of the excoriated part. After about six hours, we may remove the tampon, and again cleanse the vagina by means of a warm injection. We consider it superfluous to add astringent substances to the liquid injected in the treatment of simple erosions. After this treatment, the cauterization with the solution of nitrate of silver, as above described, should be repeated every five or six days. If, however, after four weeks the cure is not complete, it will be well to make a second application of leeches, and to cauterize afterward with the nitrate in substance.

If it be a simple erosion without any active catarrhal inflammation of the mucous membrane of the uterus and of the vagina, and without profound ulcerations of the tissue of the womb, and specially of the neck, this treatment ordinarily effects the proposed end in the time indicated. But if there be any complication, the erosion does not often disappear until the concomitant affection (catarrh, engorgement of the uterus, etc.) has first been cured.

We may also add, that, in the therapeutics of erosions, as, indeed, of all the ulcerations of the neck of the womb, an extended hygienic treatment is of the highest importance, particularly residence in a free and pure air, nourishment easy of digestion, and the removal of everything which might favor the hyperæmia of the organs of the pelvis. The treatment so much praised by some authors, and which consists in preserving for some weeks a horizontal recumbent position, does not seem to us in any way advisable, in consequence of the derangements in digestion, the constipation and the impoverishment of the blood, which result from it.

2d. When the erosion of the neck of the uterus, such as we have described, is for a certain time left to itself, or when it is for a long time submitted to the deleterious influence of exterior causes, as, for example, uncleanness, venereal excesses, repeated parturition, it is transformed into profound **ulceration,** accompanied by a loss of substance. In the place of the erosion, which at first scarcely presented a sensible depression, we see developed numerous globular vegetations scarcely of the size of the head of a pin, sometimes very close together, sometimes widely separated from each other. By the microscope we recognize that they are nothing but the papillæ of the mucous membrane highly developed, which thus give to the ulcerated surface an uneven granular aspect, from whence it happens that this form of ulceration is designated under the name of **granular.** To study more exactly these ulcerations, it is indispensable to use warm injections prudently applied, to purify the neck of the uterus from the matters which remain adhering thereto (mucus, pus, blood), after having previously exposed them by means of a glass speculum. The surface of the ulceration, which occupies a single lip or extends in a circle upon both lips all around the orifice, is ordinarily livid or bluish red. The borders of it are usually irregular; that is to say, portions of the mucous membrane, still covered with its epithelium, project from the surface of the ulceration. The loss of substance is ordinarily more considerable in the immediate neighborhood of the lips of the orifice; these appear a little separated from each other, as if turned outward, and presenting a very intense redness, with a softening and a turgescence, caused by the serous infiltration of their deep layers. If the person has previously been parturient, we can often, with a spatula of small size, so separate one of the lips of the orifice from the other, that the inferior part of the mucous membrane of the neck becomes accessible to view. It then also presents a livid red color and a rough surface, covered with numerous projecting papillæ, some of which, dilated by the collection of secreted material, constitute the glandular follicles known under the name of the **glandulæ Nabothi.** There flows from the cervical cavity an abundant quantity of glassy mucus, of a pearly grey, which may be drawn out into a thread; and

from the surface of the ulceration, all around the os uteri, a thick opaque secretion, like cream or pus, which by reason of the great vulnerability of the portion denuded of its epithelium, is often streaked with blood. If a pledget of lint is passed over the surface of the ulceration, a hæmorrhage is easily produced, which prevents a longer examination of the diseased spot. These granular ulcerations are oftenest met with, in those women in whom the uterine orifice shows lesions, the consequence of preceding labors. The most considerable waste of substance is principally found at the two lateral angles of the orifice. But this form of ulceration never exists alone; it is always associated with other profound alterations of the tissue of the uterus, most frequently an engorgement or chronic catarrh, which must sometimes be regarded as the cause, sometimes as the consequence, of the ulceration.

Granular ulcerations of the neck of the womb never get well spontaneously. But if they are left to themselves, sometimes they continue to spread, sometimes they become covered with excrescences of cellular tissue which afterward form ulcerations which we shall describe under the name of **fungous.** These ulcerations keep up a constant congestion of the uterus and its appendages, thus aggravating the alterations of tissue which this organ may present and giving rise to various pathological alterations in the ovaries and Fallopian tubes, in the vagina and rectum, of such a character that every one will comprehend the great importance of this affection and its injurious influence upon the general economy. A peculiar dirty yellow color of the skin, various troubles of digestion and divers symptoms of anæmia, and of incomplete innervation which result from it, ordinarily accompany these ulcerations when they have existed for some time, and when they have attained a considerable extent. Furthermore, the granular ulcerations of the neck are distinguished by the obstinacy with which they resist all the different means employed against them; and much patience and perseverance are necessary on the part of both physician and patient, in order that the therapeutic efforts adopted may be crowned with full success.

As to treatment, the most important point is first to diminish the hyperæmia of the uterus, which on one side produces the

ulcerations, and on the other is kept up by them. The best means of attaining this end are, to repeat every six or eight days local blood-lettings, the action of which should be kept up by the continued use of a slightly purgative mineral water. If the constitution of the patient has already sensibly suffered from the long duration of the disease, it is indispensable to the attainment of a satisfactory result that we should fortify the whole body by a proper hygienic treatment, and obtain an amelioration in the condition of the blood, by tonic remedies and principally by preparations of iron. We can also recommend the prolonged use of river and sea bathing as well as the cold-water treatment, methodically employed, and we have made it a rule that the local treatment of ulceration shall always be preceded by a course of general strengthening treatment.

It may, perhaps, appear that the advice which we have given to resort to local blood-lettings, does not accord with this principle. But we can state that we have never seen these depletions, which are repeated at such great intervals, exercise any debilitating influence upon the system.

As to the local treatment of granular ulcerations of the neck, we should remember that a regard to cleanliness is indispensable to a cure. For this purpose, we should employ, at least twice a day, hip-baths and warm injections. The injection may be made in the bath, or at least a canula of a sufficiently large size should be introduced into the genital parts in order that the water of the bath may penetrate to the bottom of the vagina. For the injections, the jet of water should never be forcibly thrown into the vagina, if we do not wish to risk the production, by its mechanical action, of a new congestion of the uterus, or of lesions of the ulcerated surface, which would prevent the cure by it. When the ulceration has little tendency to cicatrize, its color being livid, its surface bleeding at the least touch, or when there is a very abundant secretion from the ulcerated surface, from the uterine and vaginal mucous membranes, we may add to the injected liquid some astringent substance, as for example, alum, tannin, a solution of the sulphate of iron or zinc, of the acetate of lead, or the perchloride of iron. From our experience the first and last of these remedies are those which deserve the greatest confidence.

It is almost indispensable, in order to obtain happy results in the treatment of these ulcerations, to have recourse to repeated cauterizations. As to the choice of caustics, the solid nitrate of silver suffices for ulcerations of little depth, where there are no wide-spread loss of substance, few granulations, and little disposition to hæmorrhage. But if the ulceration is very extensive, covered with numerous granulations, and bleeding very easily, or indeed, if no satisfactory result has been obtained from four or five cauterizations with the lapis infernalis, we should have recourse to stronger caustics, among which the acid nitrate of mercury, Plenk's lotion (corrosive sublimate two parts, camphor one part, alcohol sixteen parts,) deserve to be cited in the first rank. These liquids are applied upon the ulcerated surface by means of a pledget of lint. It is necessary, however, to use them with the greatest precaution, in order that they may not come in contact with the vaginal walls, otherwise very deep ulcerations might result therefrom. It is also necessary to beware of repeating these cauterizations at too short intervals, for it has often happened, and we have ourselves sometimes observed it, that the neglect of these precautions was the cause of an abundant and long continued salivation.

The Vienna paste in the solid state, which, after the directions of Filhos, may be obtained by melting in an iron spoon two parts of caustic potash and one part of chalk, and immediately pouring the mass into a hot cylindrical mould, is a caustic still more energetic than those we have mentioned. Before making the cauterization, the extreme point of this caustic is dipped in alcohol and passed lightly once or twice over the ulcerations, which should be immediately dried with a pledget of lint. Then we remove, by means of an injection of cold water, the residue of the caustic, in order thus to protect the neighboring parts from the corrosive action. Filhos recommends vinegar for those injections intended to neutralize the caustic.

If the ulceration resists these energetic cauterizations, we should employ the actual cautery, which in all cases conducts the most promptly and the most surely to the desired end.

Recently, different physicians have recommended other caustics, as, for example, the tincture of iodine, concentrated

sulphuric acid, pyroligneous acid; but from the trials which we have made of them we infer that they are far inferior to those mentioned above. We have also failed to obtain more fortunate results by covering the granulated ulcerations with collodion.

We say in conclusion, that the action of the caustics which we have enumerated is notably seconded by repeated blood-lettings, a means which we ought never to neglect so long as we still recognize the symptoms of a congestion of the neck of the womb.

3d. **Fungous, or cock's-comb granulation** is to be considered as a more advanced stage of granular ulceration. We see forming upon the surface of old and neglected granular ulcerations, especially in the neighborhood of the uterine orifice, certain fungous excrescences from $1\frac{1}{2}$ to $2\frac{1}{2}$ lines in height, of a livid red color and composed of cellular tissue, very full of blood-vessels. They are often very close together, and separated by furrows, are like layers one upon the other, frequently presenting upon their free extremity numerous fissures, which are sometimes quite deep. In the majority of these cases, as we have been able to prove, both in the living and dead body, these papillary fungosities extend even to a distance of from one-fifth to three-fifths of an inch into the cervical cavity. These fungous ulcerations are ordinarily the seat of a very abundant purulent secretion, and they moreover exert an injurious influence upon the health of those affected by them. For the least touch, the mere attrition of the walls of the vagina, coitus, etc., often give rise to very copious hæmorrhages. We have even seen a case in which such hæmorrhage could not be arrested except by the application of a tampon soaked in a solution of perchloride of iron. In most of these cases, with the same females, we observe abundant menorrhagias which are assuredly caused by a hyperæmia of these excrescences, occasioned by the menstrual congestion.

Such ulcerations ordinarily resist the remedies employed against them with more obstinacy than the simple granular ulcerations; but contrary to the results of most gynecologists, we do not remember a single case where, with the necessary perseverance, we have not obtained a complete cure.

According to our observations, it is of the highest importance to remove these fungous excrescences by an operation. At least, we have several times had the experience that all the various caustics, even the most powerful, will cause them to disappear but very slowly, and that they reappear as soon as the cauterizations have been suspended for a short time. This is why we now prefer to remove fungous excrescences as near as possible to their base, by means of long, fine scissors, considerably bent upon their flat surface, and often arresting the hæmorrhage to apply upon the surface of the ulceration one of the most vigorous caustics, for example Plenk's lotion, or the solution of the acid nitrate of mercury. Unfortunately, the excrescences situated in the cavity of the neck are not easily accessible to this mode of treatment, and the cure is thereby often sensibly retarded. We cauterize these excrescences with a brush which, after it is plunged into one of the caustics which we have named, we introduce to the depth of from three-fifths to three-fourths of an inch into the cervical cavity, leaving it there for some minutes. However, before making the cauterizations, it is well to remove by an injection the mucus accumulated in the neck.

It is often necessary to repeat five or six times, and even more, the excision of the fungous excrescences; but so soon as their number diminishes and the surface of the ulceration becomes even and natural, we can, little by little, dilute the concentrated caustics which we had at first employed, and when the ulcerated surface offers neither fungosities nor granulations we may employ as a caustic a solution of nitrate of silver. In other respects the treatment of these ulcerations is the same as for granular ulcerations. Only here we are obliged, when local blood-letting is necessary, to make it by scarifying the vaginal portion in the neighborhood of the ulceration, because when applying leeches we cannot always prevent them from biting away the fungosities, which would occasion copious and debilitating hæmorrhages. This great disposition to bleeding renders absolute repose on the part of the patient indispensable, and especially the avoidance of all sexual excitement. When injections into the vagina are ordered, we should always cause attention to be paid that the introduction of the canula should

be effected with the greatest precaution, and that the injections themselves should be given slowly and without too great force. It is scarcely necessary to say that it is proper to add to the injections one of the astringents referred to above.

4. **Varicose ulceration** is one of the forms which we have most rarely observed. It is never developed but in consequence of a chronic stasis of the blood in the interior of the walls of the womb, with which, at the end of a certain time, the mucous membrane also participates up to a certain point. We have sometimes had the opportunity to observe the development of these ulcerations. The diseased state of the uterus is characterized primarily by nothing beyond an augmentation in size, a more abundant secretion from the mucous membrane which lines the cavity, and a peculiar bluish red color of the vaginal portion exposed by means of the speculum. This color is identical with that which the genital parts present during the last stages of gestation. If at this period of the disease, recourse is not had to local blood-lettings from the uterus, or if the cause which keeps up the congestion of the uterus still exists, we see some spots of deep blue gradually appear upon the vaginal portion, upon which, at the end of a certain time, we recognize the venous branches in greater or less number, showing numerous varicose dilatations. The mucous membrane which covers these spots perceptibly softens and forms, as we have been able to observe remarkably well in one case, mammillated elevations visible to the naked eye and easily recognizable by the touch. The epithelium which covers them is finally detached in its whole extent, or only in certain points, and there results therefrom an erosion which does not differ from the ordinary form which we have above described, except that the surface of the mucous membrane deprived of its epithelium is of a bluish red color and is traversed more or less by varicose veins. In one case an erosion of this kind was traversed by a vein nearly three fifths of an inch long, and dilated to the size of a crow-quill, and from which there flowed out nearly ʒij. of blood when we opened it.

If the disease progresses, the loss of substance always extends further, and from time to time hæmorrhages supervene. The surface of the ulceration is so **doughy** that the sound can with

facility be thrust into it, and this emaciation of the surface, this peculiar bluish red color, and the presence of the above-mentioned varices, easily enable us to distinguish this form of ulceration from all others.

We have, up to the present, observed varicose ulceration of the lips of the uterine orifice almost exclusively in cases where the abdominal circulation was disturbed by the presence in the abdomen of considerable tumors, or by diseases of the heart or of the lungs. We have sometimes seen it complicating the varicose dilatation of the hæmorrhoidal veins, and in these cases a rectal hæmorrhage, somewhat abundant, led almost always to a diminution of the hyperæmia of the uterus, and to a discoloration of the surface of the ulceration, sometimes accompanied by a complete disappearance of the varicose veins which had been before observed.

The varicose ulcer ordinarily heals pretty soon after the use of the remedies indicated for granular ulceration. It however appears to possess a great tendency to return; we cannot generally prevent it, except when we succeed in destroying the cause of the disturbance of the circulation in the vessels of the pelvis, which, unfortunately, is a very difficult task in the majority of the diseases mentioned, which keep up the hyperæmia of the uterus.

5. The **phagedenic ulceration** is assuredly the rarest form of the ulcerations of the vaginal portion. We do not know it, so to speak, except from the descriptions of English authors, particularly those of Clarke and Levers, who have introduced them into practice under the name of **corroding ulcer of the os uteri.** The rarity of these ulcerations is such that the physicians of the continent who have the most experience in pathological anatomy, and in gynecology, have not recorded a single case. Furthermore, there is some little probability that the English authors, in describing this particular form of ulceration, have made a mistake as to the exploration of the anatomical characteristics, inasmuch as they have doubted the presence of a cancerous deposit in the interior of the parenchyma of the uterus. We found this opinion upon the observation made in the course of the year 1845, of the case in which a young woman of twenty-five years, treated at Prague, in the

gynecological clinic, died at the end of a little time, with unmistakable symptoms of carcinoma uteri. The womb was in such a state of destruction that the anatomists were tempted to reverse the diagnosis announced in the clinic of a uterine carcinoma, and to recognize in this affection a corrosive ulcer. The inferior portion of the body, especially the vaginal portion of the uterus, and the superior half of the vagina, were transformed into a soft mass, ragged, of a pale brown, infiltrated with a fetid sanies, and presenting deep ulceration upon its internal surface. This ulceration had completely destroyed the superior and posterior border of the vagina, and all the posterior part of the neck. The opening was closed only by the rectum, the walls of which were completely softened, friable and invested with an œdematous mucous membrane, of a dirty brown, and were at that place covered with spots of a blackish brown. It was not till afterward, in examining the organs in question closer and with more care, that we found in the middle portion of the anterior wall of the uterus (as well as in the neighboring lymphatic ganglia) a sufficiently hard infiltration of colloid cancer finely granular.

This observation induces us to admit the opinion of Kiwisch, that the ulcerations called phagedenic, are nothing but a completely decomposed medullary carcinoma. Furthermore, to be complete, we will cite a passage from Rokitansky's *Pathological Anatomy* (vol. iii., p. 538), which relates to this subject. He expresses himself as follows: "The eating ulcer of the uterine orifice is like the phagedenic ulcer (cancerous) of the skin; without having a neoplasm for its point of departure, little by little it consumes the vaginal portion, or, indeed, the greater part of the uterus, destroying as the same time the adjacent tissues, even to the rectum and the bladder. It is an irregular ulcer, with a sinuous dentated outline, on the border and base of which, in consequence of a slow inflammation, the tissues are thickened, hypertrophied and hardened. Its base, of a dirty color, greenish or brownish green, sometimes secretes a slight quantity of a viscous, purulent liquid, and sometimes a watery fluid in greater abundance. It offers no granulations, but a gelatinous exudation, in which the different tissues of the ulcerated surface are liquefied.

While awaiting new observations to clear up the nature of this disease, the development of which is still so obscure, let us add in a few words that from the cases known at present it is always fatal, and in general it is necessary in the treatment to be governed by the principles which we shall indicate when we come to treat of the therapeutics of cancerous ulcer of the vaginal portion.

[From the observation of two cases only which have been under our care, we cannot be expected to add much to the small amount of knowledge of this disease. Still it is perhaps a duty to add the mite we may to the general stock. Although we are disposed to consider this form of ulcerative disease as properly to be classed under the generic head of cancer, still it is quite different in its manifestations, its origin, progress and symptoms from ordinary cancer of the uterus, and therefore demands a separate recognition and paragraph in a work like the present manual.

In the first case, which occurred in a widow of some 35 years of age, the symptoms and appearance of the disease when we were first called to observe it, were scarcely more than those which are found in an aggravated form of erosion of the uterine neck, except that there was not, as to speak, so healthy a look. There were no granulations, or interspersed healthy oasis-like spots in the interior of the ulceration. The whole surface of the ulceration seemed depressed, with no elevated points in any portion of it, and the whole was covered with a small but thick, dirty-looking discharge, which, when wiped away, showed a dull, leaden, quite regular surface. The general appearance of the woman, otherwise perfectly well, was cachectic and pale; her face seemed to be slightly œdematous. She was put upon tonics, quinine and iron, and advised to take freely of nutritious food, etc. The local difficulty was treated by various cauterizations, astringent applications, etc., but without any marked result. The disease gradually advanced, destroyed the entire cervix, attacked the body, and the patient succumbed, after some eight months' struggle.

We were called to the other patient in consequence of repeated uterine hæmorrhages—supposed to be from the

"change of life"—which the attending physician had not been able to check. She was a woman of great personal energy and stamina, the mother of many children, and in her family there was no cancerous diathesis known. The only symptom was the immense hæmorrhages—if we may except an aggravated prolapsus of the rectum from a polypus near the sphincter, which required to be pushed out with the attached bowel before a fecal evacuation could be effected, and which was entirely cured by the removal of the polypoid growth—which had exhausted her very much, and left her in a very anæmic state. This hæmorrhage was entirely arrested, and two or three subsequent attacks also, by cauterizations of the whole ulcerated surface, which embraced the remainder of a half-destroyed cervix, enlarged and hypertrophied, together with the circumjacent thickened tissue, to the size of a tea-cup top, with the solid pure nitrate of silver, which was also passed freely into the uterine cavity. With the arrest of the hæmorrhage, and the subsequent expulsion of some hundred lumbrici, the patient gained health and strength; and although she scarcely left her room for nine months, manifestly improved in her general health, at times eating freely. The ulceration however advanced till it opened into the bladder, and the irritation from the urine constantly flowing through the vagina and over the thighs added much to her discomfort. She died very suddenly, with all the symptoms of an excessively intense peritonitis. Such fever-heat of the skin we never saw equalled. The autopsy showed that an opening existed between the bladder and the peritoneal sac. Not a trace of the uterus could be found, except the peritoneal coat, with a small opening, through which the fluids had entered the sac, causing the fatal peritonitis. Unfortunately, the specimen was carelessly destroyed before a more minute examination could be made.

The absence of all the lancinating pains so pathognomonic of cancer, was a notable feature of both of these cases. In neither was there any of the fetor so peculiar to cancer of the uterus. In the latter case, the uva ursi, so vaunted as a specific for cancer, was freely given both internally and externally—thirty drops of the saturated tincture three times a day—and cold vaginal injections of the infusion.]

6. **Syphilitic Ulceration.**—Kiwisch describes in his **clinical lectures** two forms of ulceration of the neck resulting from syphilitic infection; that is to say, the **syphilitic erosion** and **chancre,** properly so called. We cannot approve this method of regarding this subject, for neither the explanations of Kiwisch nor our own experience have enabled us to find a single characteristic from which we can recognize whether the erosion is or is not syphilitic.

The diagnosis of the syphilitic origin of an ulceration of the neck cannot be laid down with certainty, except by the inoculation of the chancre by means of the liquid secreted by the ulceration. But that is scarcely possible for ulcers of the uterine orifice, first and chiefly because the neck of the uterus is rarely the seat of a primitive syphilitic ulceration, and also on account of the ordinarily short duration of these ulcers. In fact, they are usually cured in a few days, so that we shall not have an opportunity, except in very rare cases, to convince ourselves of the specific nature of these ulcerations.

In a few cases only we have had the opportunity to observe primitive chancres of the vaginal portion; and we agree with Suchanek, when he says (*Prager Vierteljahrsch.*, vol. xxxiii., p. 11) that these ulcerations resemble in depth, extent and form the chancres on other parts of the body, and that they have nothing peculiar to them, but the greater injection of the neighboring parts, and a disposition to bleed at the least touch.

The catarrh of the vagina and uterus are well known often to accompany female syphilitic affections. Suchanek met with it in three hundred and forty-two cases out of five hundred and three cases of ulceration, so that it is not astonishing to observe erosions and granular ulcerations as complications of syphilitic affections, without their being on that account of specific origin. If, indeed, we were disposed to consider them as consequences of what has been called venereal catarrh, this opinion would only be admissible when we had discovered in other parts of the body affections whose syphilitic origin was indisputable. But even in such cases, we should always determine on a diagnosis with great precaution, and only infer the probability of the syphilitic nature of the ulcerations of the neck when a prolonged observation of the progress of the disease leaves no

doubt that the ulceration of the vaginal portion was not anterior to the chancres, condylomata, etc., which are found in another part of the genital organs. We could cite many cases in our private practice where we have treated young girls affected with chronic leucorrhœa, erosions, and granular ulcerations of the vaginal portion, who, before the complete cure of these diseases exposed themselves to syphilitic affections, so that suddenly, besides the preëxisting disease, we have had an entirely recent chancre. With what facility, following the ordinary method regarding this subject, might we allow ourselves to consider the affections of the uterine orifice as syphilitic?

It results from all that we have said, that we shall rarely be in a position to infer with entire certainty the syphilitic nature of an erosion of the uterine orifice, especially when the case is one of a female whose manner of life exposes her to very repeated sexual pleasures, for in these cases it is not rare to meet with erosions which are purely traumatic. It is the same with granular ulcerations; for even although many authors declare that the chancre often in a short time assumes the character of a granular or even a fungous ulceration, we have no means of deciding whether it is of a benign or a virulent nature, unless, with a view to assure ourselves of the diagnosis, we await the appearance of the symptoms of secondary syphilis.

In consequence, we admit but a single syphilitic affection of the vaginal portion; and this single affection, which may be recognized with certainty, is the chancre transmissible by inoculation. But it is so rare that Suchanek has only observed it twice in four years in the division of the hospital of Prague reserved for syphilitic affections, and attended by a considerable number of patients.

After what has been said, we do not attribute with any confidence a specific character to the erosions and granular ulcerations of the neck, except when we are entirely persuaded that they are developed only after a longer or shorter duration of a syphilitic affection in some other part of the genital organs.

The treatment of chancre of the neck does not differ from that of analogous ulcerations in other parts of the body; we will only observe that a necessary condition to obtain a prompt

cure is the most absolute repose and the greatest cleanliness of the genital parts (by means of injections of warm water repeated many times a day). When the hyperæmia of the genital parts is well marked, one or two local bleedings hasten the cure. In the very rare cases, where the chancre is concealed in the canal of the neck, it is always necessary to have recourse to repeated cauterizations by means of the solid nitrate of silver. As to the treatment of the hypersecretion of the mucous membrane of the genital organs which accompanies the different forms of ulceration, we refer to what we have said on the subject of acute and chronic catarrh of the uterus.

7. The **ulcerations** resulting from the decomposition of **cancerous** and **tuberculous** infiltrations are described in the corresponding chapters to which we refer.

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Art. XI.—Neoplasms of the Uterus.

§ 1. *Fibrous Tumors of the Uterus.*

The tumors of the cellular tissue known by the name of fibroids, are one of the species of neoplasms most often observed in the interior of the parenchyma of the womb. They appear under two different forms, the distinction of which is of

great practical importance. These tumors are developed sometimes simply in the interior of the walls of the uterus, and do not evince, during the whole duration, any tendency to detach themselves from the walls of the womb, and to project into the uterine cavity, or even through the orifice. Sometimes they are from the beginning more or less free in the cavity of the womb, increasing in the direction of the orifice, which they dilate, protruding partially or wholly into the vagina, and even outside of the external genital parts.

The name of **fibrous bodies** has been given to the first of these tumors, while the latter are ordinarily called **fibrous polypi.**

The differences in the progress, the prognosis, and the treatment necessitates a specific description for each of these two forms.

A.—*Fibrous bodies of the womb.*

Pathological Anatomy.—As we have already said, fibroids of the uterus are composed of cellular tissue; they are formed of a collection of fibres, which present sometimes a concentric organization, and sometimes interlace in every direction, and give to the tumor a diffuse texture. Besides the fibres of cellular tissue, we meet in these tumors fibres with nucleoli, elongated nuclei, and fusiform cells. According to Rokitansky, these tumors are sometimes composed of fusiform cells closely connected together, between which we most constantly meet with fibro-plastic cells, in a greater or less number, and resembling the fibres of the uterus.

The fibrous bodies of the womb are ordinarily surrounded with a more or less strong layer of rather loose cellular tissue, from which they may be easily detached, at least in a part of their circumference.

Generally these tumors have a globular form; but their surface, especially when their texture is diffuse, is covered with a greater or less number of spherical protuberances, which give to the tumor an irregular and mammillated form. The size of the fibroids is very variable, from that of a grain of millet seed to that of a man's head, and even more. In general, the tumors have diffuse texture, presenting an irregular, mammilated surface, and attain a greater size than those which have

an even surface, a spherical form, and a concentric arrangement of the fibres. Ordinarily we meet with but one fibrous body; still the cases are not rare in which the walls of the uterus contain a very considerable number. We remember to have seen an anatomical preparation of which the walls of the uterus contained twenty-seven similar tumors, the largest of which was perhaps of the dimensions of a hen's egg, and the smallest as large as a walnut. When the womb contains many fibrous bodies, they are generally of very various dimensions.

Relatively to their location, experience teaches us that these tumors, in the great majority of cases, occupy the superior portion and fundus of the womb; much more rarely they are observed in the inferior portion; but in the neck the development of a slightly voluminous tumor of this nature would be a very exceptional fact.

According as the tumor is located immediately below the peritoneal envelope of the womb, in the proper tissue of this organ, or under the mucous membrane, fibrous bodies are distinguished as **sub-peritoneal, interstitial** and **sub-mucous.** This distinction, as we shall see hereafter, is sufficiently important in practice. So soon as a fibrous body, inclosed in the uterine walls, has attained some considerable dimensions, for example, the size of a pigeon's egg, the tissue of the womb and the mucous membrane which lines its cavity, almost always presents alterations of texture easy to recognize. We find these alterations less often when the tumor is situated immediately below the peritoneal envelope; in this case the continued and considerable tension of this membrane, especially when the development of the tumor is somewhat rapid, rather excites an exudation upon the surface of the womb, and the formation of adhesions with the neighboring organs and the walls of the pelvis. But when the fibrous body is interstitial, we always observe a hypertrophy of the muscular layer of the womb, and the vessels of this organ, particularly the veins, attain a development which is not otherwise met with, except in the last stages of gestation. The mucous membrane, sooner or later, participates in this development of the vessels of the uterine walls; it then appears highly tumefied, and softened, presenting patches a lively red color; it is traversed by veins visible to the

naked eye, and is constantly covered with a quite thick layer of viscid mucus, often sanguinolent. So long as the tumor has not attained a very considerable volume, the resulting hypertrophy of the uterine walls extends even to the neck and to the vaginal portion, which in this stage of the disease is ordinarily enlarged, tumefied and thickened, presenting upon its orifice excoriations or ulcerations. But if the tumor increases in volume, if it projects into the uterine cavity, and by its increase dilates the walls of the womb, the enlargement of the cavity of the womb, as in the last months of pregnancy, cannot take place, except at the expense of the cervical cavity. The neck and the vaginal portion constantly become shorter, and the latter may diminish to such a degree that it only forms around the uterine orifice a feeble and slightly tumefied border. If the tumor continues to increase, the mechanical dilatation of the orifice may go so far that an opening of the diameter of four-fifths to one inch or more, is produced. The influence which fibrous bodies exert upon the uterine cavity, properly so called, varies much according to their location. If the tumor is sub-peritoneal, the dimensions of the cavity do not often sensibly differ from that met with in the normal state, and if sometimes the length or the breadth is a little more considerable, it never extends to the same degree as when the tumors are developed in the midst of the proper tissue of the uterus, which indeed itself undergoes a considerable augmentation of volume. When the fibrous body has attained the size of a goose egg to that of a child's head, the cavity of the womb presents in its longest direction a dilatation of $5\frac{1}{2}$ to 7 inches, or even more. The dimensions of the other diameters vary according as the tumor is developed within or without. In the first case, the wall of the womb which surrounds the fibrous body is applied against the opposite wall, while in the second case the cavity is considerably dilated. The fibrous sub-mucous bodies which are developed in the interior of the uterine cavity perfectly fill it in such a manner that the tumor is, in its whole extent, in contact with the walls of the womb.

Fibrous bodies, so soon as they surpass the size of a pigeon's egg, always cause displacements of the uterus. When the tumors are of small dimensions (from a pigeon's to a hen's

egg), their location being on the superior half, or toward the fundus of the uterus, this organ ordinarily inclines toward the region of the pelvis, which corresponds to the seat of the tumor; and the displacement does not change its direction anew, except when the walls of the pelvis oppose an obstacle to the ulterior development of the fibrous body.

In these circumstances the tumor, whose development always continues, and which finds a point of support in the wall of the pelvis, must necessarily push back the summit of the uterus toward the opposite side of the pelvis, and thus explains the fact that when the fibrous body is situated in the anterior wall of the womb, an anteversion which had been observed, at a less advanced period of the malady, is, little by little, changed into a retroversion. If the tumor still continues to increase, and the pelvic cavity no longer offers the necessary space for its development, it gradually passes beyond the superior strait of the pelvis, and rises to the abdominal cavity in a direction where, from the facility of the displacement of the intestines, it will not encounter much obstruction, and we may in general admit that the elevation of the tumor becomes more considerable in proportion to its increase in volume. But according as the tumor is elevated, it drags the uterus also with it, in such a manner that, when the fibrous body has attained great dimensions, we ordinarily observe a considerable elevation of the womb. Fibroids of the uterus, as soon as they are somewhat voluminous, also exert an injurious influence upon the neighboring organs, and especially upon the rectum. The continual pressure to which this organ is submitted occasions alterations in the circulation of the hæmorrhoidal vessels, which are recognized in the cadaver by the varicose dilatation of the veins and by chronic catarrhal inflammation of the mucous membrane. Displacements of the bladder are often met with, resulting from the impossibility of its dilatation. Chronic catarrh of its mucous membrane, as well as of that of the urethra, also occur; and one is not astonished to see the compression of the vessels of the pelvis result in a stagnation of blood in the vessels of the vagina, a chronic hyperæmia, and a hypersecretion of the mucous membrane. We have already mentioned the inflammations of the peritoneum with resulting

adhesions of the womb, which are particularly observed as a consequence of fibrous bodies when their development is rapid. It is more rare to find at the autopsy an inflammation of the veins of the pelvis and the inferior extremities. We have only observed it in some very anæmic individuals, in consequence of disturbances in the circulation and the purulent or putrid decomposition of sanguineous clots formed in the veins.

Fibroids of the uterus may still, during the life of the patient, undergo various alterations, which may be recognized at the necroscopy. It is extremely rare that we observe **a cure by the unaided forces of the system,** through the detachment of the tumor and its subsequent expulsion. In such a case, the cellular tissue which surrounds the tumor suppurates and decomposes in consequence of an inflammation transmitted to it by the mucous membrane; the tumor falls into the cavity of the uterus and is sometimes expelled by the contractions of the walls of this organ. Up to the present time it is not decided if fibrous bodies are capable of being **absorbed.** Although such cases must be very rare, an observation which we have made speaks in favor of the possibility of this termination. In this case a fibrous body, of the size of a man's hand, the diagnosis of which was perfectly sure, disappeared during confinement, in a manner so complete that six weeks after parturition we could no longer discern a trace of this tumor, which had existed for eleven years. If we consider the great vascularity, the hyperæmia, the infiltration, and the softening which these tumors present during gestation, it will be seen that if there is any time at which the conditions are favorable to absorption, it surely is the puerperal state.

Another degeneration which may be regarded as a sort of natural cure, is the **calcareous degeneration** and the **ossification** of fibrous bodies, which takes place in the manner generally known, especially in tumors which are old and of a considerable volume, this process prevents any subsequent development. As we have already said, there are fibrous bodies which are formed by the aggregation of tumors of different sizes, bound together by loose connecting tissue, which is rich in blood-vessels. In this tissue there are sometimes formed cavernous excavations filled with blood, the rupture of

which often occasions very considerable extravasations of blood. At other times this intermediate tissue is infiltrated with serum, and there results therefrom a sort of **dropsy of the fibrous body.** There are also observations of the formation in the tumor, of a cavity more or less large, filled with a serous, sanguineous or putrid liquid, which, by the constant fluctuation, render during life the diagnosis of a fibrous body very difficult. A true **inflammation** of these neoplasms, with **suppuration** and **decomposition,** is very rare, and never extends beyond the surface of the tumor, and it should be considered as the consequence of a like affection of the layers of the connecting tissue.

[On page 510 of the American edition of "Tyler Smith's Lectures on Obstetrics," we added a note to the effect that after labor, fibrous tumors previously existing degenerated, either from the effects of pressure or from the injury sustained during the delivery, or else from the fact that the supply of nutrition being cut off by the contraction of the uterus, the subsequent involution of the womb closed the vessels leading to the tumor. It is noticed not uncommonly, that when a pregnancy goes on to full time, with a coexisting fibrous tumor deriving its nutrition from the uterus proper, that the tumor is very rapidly developed, owing to the afflux of blood to the organ. When, after delivery, this supply is almost entirely cut off, there is not sufficient blood going to the organ to keep up this parasitic growth, which speedily becomes disorganized, and often, happily, either in a grumous, sometimes fetid discharge, or in the form of pus, with or without noticeable inflammatory symptoms, pain, etc., opens into the uterus or vagina, more rarely even into the rectum and bladder. We suspect that some of the pelvic, cellular abscesses occurring after labor, may perhaps be properly considered as the result of the breaking down of previously unsuspected fibrous tumors. Several cases that we have seen, while they are not perfectly convincing, force us to give this opinion some consideration.]

Etiology.—Our knowledge of the causes of the formation of fibrous bodies is very limited. We may however state with some certainty, that these tumors are most often observed in women from thirty-five to forty-five years of age; at least, the

cases beyond these limits, in which the disease has attained a development which permits it to be diagnosticated during life, are relatively rare. The fact that out of sixty-nine women that we have treated with this disease, thirty-five had never been pregnant, seems to us to indicate that sterility has a certain influence upon the development of these tumors.

We do not venture to decide how far disturbances of the menstrual function play a part in the etiology of the fibrous tumors of the womb; for we can never be sure that the dysmenorrhœa, or the too scanty or too copious menstruation, which is often observed among women who afterward develop the tumors in question, may not perhaps be the early symptoms of an incipient tumor. But if the fact is considered that the anomalies of menstruation, which we have cited, are often accompanied with more or less extensive sanguineous extravasations in the parenchyma of the uterus, we shall not be accused of advancing a too hazardous hypothesis, if we claim that the formation of connecting tissue in consequence of the organization of these sanguineous extravasations, is the first germ in the development of these tumors.

[From recent observations, we are inclined to think that fibrous tumors of the uterus are much more frequent among the negroes than among the whites, and to such a degree, that perhaps we should not much err were we to say, that among the blacks, at the north certainly, the female of forty, without one or more fibrous tumors, would be the exception rather than the rule, as very few autopsies of colored women are made without showing one or more of them, and not unfrequently ten, or even twenty, of various sizes.]

Symptoms.—Fibrous tumors are one of the diseases of the womb which, in consequence of the violence of the symptoms which accompany them, demand the special attention of the physician.

If we consider in the first place the subjective symptoms, we ordinarily see them appear in the following order. The disturbances in the sanguineous and mucous secretions of the uterus are ordinarily the precursors of symptoms which afterward become very distressing for the patients. The menstrual flow in the majority of these cases is more abundant, and the

blood which flows is intermingled with clots of greater or less size; the commencement of the hæmorrhage is often accompanied by pains, which are of a pricking, tearing kind, or resemble those of labor. These pains affect the sacral and hypogastric regions. The intervals between the menstrual periods become continually shorter. During these intervals we observe with most patients a mucous discharge from the genital parts. Still it is not always the case, and this symptom is absent especially when the fibrous body is situated immediately underneath the peritoneal envelope of the uterus.

When these symptoms have lasted for some months, with more or less intensity, the patients begin, even during the intervals of menstruation, during which they formerly had no pain, to perceive a weight, a fullness in the pelvis, and a painful pressure toward the sacrum. The patient also often already complains of a more frequent desire to urinate, and of a very painful constipation, often lasting many days, and sometimes accompanied by dilatation of the hæmorrhoidal veins and of slight hæmorrhages in the rectum.

Often, but not always, we then see hæmorrhages more or less abundant appear between the menstrual periods; and when this is not the case, the menstrual flow is so much the more abundant and lasts a much longer time—often two or three weeks—in such a manner that the escape of blood is almost uninterrupted. An exception to this rule is often met with in sub-peritoneal fibrous bodies, which often attain a very considerable size without producing metrorrhagia or menorrhagia; and it even sometimes occurs that the atrophy of the muscular tissue which often accompanies this form of tumor, causes a diminution of the menstrual flow, and even a complete amenorrhœa.

At this stage of the disease, the pains hitherto supportable become sensibly more intense. At different periods, and particularly before the return of the catamenia, the patients complain of violent attacks of very acute pain, sometimes seated in the sacral and hypogastric regions, sometimes radiating along the length of the back and along the inferior extremities, even to the soles of the feet. These attacks often continue several hours, and even several days, and when they are frequently

repeated they considerably prostrate the strength of the patients. These paroxysms are often accompanied by reflex symptoms in the distant organs, as, for example, a violent headache, palpitation of the heart, nausea, cardialgia, vomitings, and even general convulsions. The abundant and frequent losses of blood, as well as the difficulties of digestion occasioned by the violent paroxysms of pain, must necessarily, after a longer or shorter time, result in a diminution or a decomposition of the mass of the blood, and the anæmia which results therefrom is often the source of new pains; and if we regard the injurious influence which anæmia almost always exerts upon the cerebral and peripheral parts of the nervous system, we may easily comprehend why we rarely find a patient affected with a fibrous body of the womb, who does not at the same time present a greater or less number of symptoms which are commonly included under the name of hysteria.

The symptoms which we have just enumerated may continue many years, presenting from time to time exacerbations and remissions, without the patient being aware that she carries in herself so grave a malady. She herself, and unfortunately, also, too often, the physicians who attend her, mistake the cause of the disease, which is regarded as nervous or hæmorrhoidal, until, finally, a more exact **local exploration** discloses the real state of things.

In the majority of cases, the fibrous bodies of the womb, so soon as they have exceeded the size of a goose's egg, are easily recognized by palpation through the abdominal walls. However, the size, the location, the texture of the tumor sensibly modify the results of the exploration. In fact, it is not necessary to demonstrate that a tumor, the seat of which is at the top of the uterus, is more accessible to palpation than one situated in the inferior part of this organ; in like manner, we may recognize more easily the outlines, the mammillated and irregular surface of a tumor which is subperitoneal or covered only with a thin layer of the parenchyma of the uterus. The diagnosis by external exploration of tumors which are deeper seated or are developed within the uterine cavity will, on the contrary, present great difficulties. In fact, it is not possible to distinguish exactly the irregular form of the uterus caused by

the presence of a tumor, from the mammillated or spherical surface of the latter. Finally, the certainty of the diagnosis depends much on the structure of the tumor itself.

The diagnosis will be the easier, when the fibrous body is composed of several distinct tumors; its hardness, its irregular bosselated surface prevents, when it is not too deeply seated, its being confounded with any other disease; while simple tumors, especially if they project into the uterus, are not easily discriminated from an augmentation in the volume of the uterus due to another cause. The diagnosis will be still more difficult if the fibrous body has not the degree of hardness which it ordinarily presents, and if the tumor is soft, doughy, and offers a sensible fluctuation, as is observed after a congestive tumefaction from a serous infiltration, or from the development, in its interior, of a cavity filled with liquid.

After what has been said, it will be seen that the hardness, like that of wood, which is perceived by palpation through the abdominal walls, the irregularity of the outlines, and the unequal and bosselated surface of the fibrous bodies of the uterus is not at all a constant symptom of the presence of these neoplasms.

The results of internal explorations are quite as variable, and depend equally upon the nature of the fibrous body. The size of the tumor, also, and particularly its more or less deep location in the tissue of the womb, modify them exceedingly.

When a subperitoneal fibroid is inclosed in the lower part of the body of the uterus, we ordinarily perceive it without difficulty by internal exploration as a hard and limited tumor, even when it does not exceed the size of a pigeon's egg; while a tumor of this size will not be at all accessible to the exploring finger when it is located a little higher up. In the subperitoneal fibrous bodies of the uterus, the vaginal portion can undergo no alteration; but such a case is relatively rare, because the walls of this organ most frequently present a marked hypertrophy so soon as the tumor has attained some considerable size; and this hypertrophy extends over to the vaginal portion, the volume of which increases as well in length as in breadth. In such cases, the circumference of the inferior

portion of the uterus also presents a perceptible augmentation, and in general a more exact examination recognizes the organ in a state which we shall have occasion to describe in the chapter treating upon the chronic engorgement of the womb.

But if the fibrous body is situated in the proper tissue of the uterus, or if it even protrudes into the cavity of this organ, we shall always find an augmentation in the volume of the inferior portion of the womb. On the contrary, the vaginal portion will become more and more shortened as the tumor increases and distends the walls of the uterus. Thus, when the fibrous body has attained the size of a child's head, there remains around the edge of the uterine orifice only a narrow border, and if the tumor still increases, such a dilatation of the uterine orifice may result, that the introduction of a finger into the uterine cavity becomes possible, and we may thus arrive at an exact knowledge of the presence and form of the tumor.

The position of the vaginal portion in the disease which we are now considering, is not constant, but it depends on the size and position of the fibrous body. When a small tumor from the size of a pigeon's to that of a hen's egg, located near the summit of the uterus, by its weight makes this organ to deviate toward the side corresponding to its situation, the vaginal portion is withdrawn from the axis of the pelvis in an opposite direction. It does not again approach this line except when the tumor, continually increasing in size, comes immediately in contact with the pelvic or abdominal walls, and thus pushes toward the opposite side the fundus of the uterus to which it is attached. If the fibrous body still increases in size it continues to fill more completely the cavity of the pelvis. From this a still more considerable displacement of the uterus necessarily results if at least the organ has not been previously rendered immovable by peritoneal adhesions; in fact, we sometimes find the womb strongly pressed against one of the sides of the pelvis and so compressed by the tumor, that it is often very difficult to find the vaginal portion.

When the tumors are smaller and can be contained entirely or in part within the cavity of the pelvis, the uterus, by its own weight, descends more deeply into this cavity, which will be very easily recognized by the lower position of the vaginal portion, and

of the inferior segment of the uterus. But if the fibrous body has attained such dimensions that it can be no longer contained in the pelvis, it passes the superior strait and continually rises, drawing with it the vaginal portion. It is thus that we must explain the elevated position which it presents in the majority of the cases where fibroids have attained a very considerable size.

Differential Diagnosis.—Although the diagnosis of fibrous bodies of the uterus which have attained a considerable development, do not present great difficulties, we cannot, however, deny that there are cases, which are not even rare, where a repeated examination and a prolonged observation of the progress of the disease can alone prevent errors of diagnosis.

We ought first to mention that at a certain stage of the disease, it is very difficult to distinguish from a **fibrous polypus** a sub-mucous fibrous body projecting into the uterine cavity. This, every one will easily comprehend after having attentively read the description which we shall shortly give of the symptoms which accompany fibrous polypus. Still, there are circumstances which, although insufficient in all cases to establish the diagnosis, are certainly worthy to receive the attention of practitioners. We know, above all, by experience, that sub-mucous fibrous bodies do not ordinarily occasion a dilatation of the uterine orifice until they have attained a considerable volume. With fibrous polypi this dilatation of the orifice takes place much sooner, and we even observe it in cases where the tumor is scarcely of the size of a pigeon's egg. Furthermore, we think we have observed that the painful contractions of the uterus are much more intense with fibrous bodies than with fibrous polypi. This is perhaps explained by the fact that these latter tumors, ordinarily fixed to the uterus by a pedicle relatively small, do not present on the return of the menstrual congestion, an increase of volume so considerable as the fibrous bodies seated more profoundly in the tissue of the uterus and traversed by numerous, and often very important vessels. Next, it should be remembered in making the diagnosis that fibrous polypi larger than the size of an infant's head are very rare, while fibrous bodies are often of equal volume. The existence of a sub-mucous fibrous body will be admitted with much more probability when the volume of the tumor is very considerable, sur-

passing, for example, that of the head of a child; when the progress of the disease is characterized by very severe uterine colics; and when the uterine orifice is either closed or but slightly open. In cases where the differences just indicated are not sufficient to allow a certain diagnosis to be made, we recommend the artificial dilatation of the uterine orifice by the introduction of a piece of prepared sponge. In many cases we have been able by this means to discover enough of the tumor to dissipate all doubts as to the mode of its insertion into the internal surface of the uterus. Latterly, the uterine sound has been recommended and often used for this purpose. We have also often availed ourselves of this instrument in such cases. But the results have not been at all satisfactory to us, for we have always found that by this method of exploration, we cannot recognize in a certain manner whether the tumor adheres to a more or less extensive surface of the uterine wall. Further, the particular form of the tumor, whether it be a submucous fibrous body, or a fibrous polypus, often prevents the introduction of a rigid sound having a determined curve, and this instrument may easily cause abundant hæmorrhages difficult of arrest. Furthermore, as to the differences which these two diseases present, we refer to the consideration which we shall give for the diagnosis of fibrous polypi.

None of the diseases of the genital parts and of the organs of the pelvis can be so easily confounded with the fibrous bodies of the womb, as **chronic engorgement of the uterus.** We have already indicated in the pathology of this latter affection the distinctive characteristics necessary to recognize it and to avoid useless repetitions, we refer to that chapter.

Fibrous bodies cannot be confounded with **carcinomatous affections of the womb,** except in three very rare cases: 1, when it has its starting point in the vaginal portion, whether in the cavity of the pelvis or in the vagina; 2, when its surface is itself already irregular and mammillated, and, 3, when, in consequence of ulceration or decomposition, it is covered with projections and depressions. In fact, in such a case, the diagnosis is, as we have convinced ourselves, a very difficult task for the physician, and we cannot establish it in a reliable manner until we have examined under the microscope a portion of the tumor

spontaneously separated or artificially detached. Unless in these exceptional cases, it will suffice to distinguish the two diseases of which we speak, if we remember that the fibrous bodies which are ordinarily developed in the summit or on the superior part of the uterus cause, sometimes, a hypertrophy and tumefaction of the vaginal portion, which is often covered with little ulcerations, but which never present such a degree of induration nor so deep ulcerous destruction as the cancerous infiltrations, the point of departure of which is most frequently the neck of the uterus. The **sub-peritoneal cancerous deposits,** if they are located in the superior portion of the uterus between its proper tissue and the peritoneal envelope, often present to the abdominal touch a great analogy to the subperitoneal fibrous bodies. But we can have no doubt as to the nature of the malady if we consider, 1, that, except in very rare cases, we do not meet with such isolated deposits without simultaneous cancerous affections of other organs, such, for example, as the peritoneum, the liver, the stomach, etc.; 2, that their progress is ordinarily much more rapid, more profoundly affecting the general health of the economy; and 3, that painful contractions and hæmorrhages which so often accompany fibrous tumors, are absent in the majority of cases of sub-peritoneal cancer. We shall be still less inclined to hesitate, if the introduction of the uterine sound does not disclose any alteration in the form and size of the cavity of the womb.

All that we have said equally applies to **peritoneal exudations,** adhering to the uterus, and forming in its immediate neighborhood resisting tumors which, by palpation and external examination, are perceived as swellings more or less voluminous, hard and irregular. Their habitual connection with puerperal peritonitis, and the absence of symptoms originating from the uterus, which we have already many times mentioned as characteristic of fibrous tumors, are sufficient to confirm the diagnosis. It is only necessary for us to remember here that the peritoneal exudations which have taken place in the fold of Douglas, or in the vesico-uterine excavation, very rarely present the sharply-defined spherical form characteristic of fibrous bodies, but they form more flattened tumors, without mammillated surfaces, the hardness of which closely resembles that of wood.

In a case of **anteflexion** or **retroflexion** we may, if the examination be superficial, mistake for a fibrous tumor **the fundus of the uterus enlarged by a chronic engorgement,** if, on exploration, the organ appears as a tumor situated before or behind the vaginal portion. And this mistake is the more easily made, because flexions of the uterus are ordinarily accompanied by painful contractions, hæmorrhages, leucorrhœa, etc. But here also the diagnosis will not be difficult, for we easily recognize fibrous tumors, even the smallest, from their immobility, and also from the fact that by the touch we can follow the tissue of the uterus from the neck even to the seat of the tumor, without meeting a place softer or more sunken, as takes place in flexions of the uterus. The use of the sound to confirm the diagnosis would not be necessary, except in those cases where the end of the finger cannot easily reach a tumor situated before or behind the vaginal portion, and which has been recognized by palpation through the superior wall of the vagina, for here the touch will not suffice to establish a certain diagnosis. However, this will not be possible, except in the cases of very slight flexion or a flexuous version of the body of the uterus; where the fundus of this organ does not descend sufficiently; or where we have to do with fibrous tumors situated higher up in the anterior or posterior wall of the uterus. But here the augmentation of the size of the uterus, which can ordinarily be recognized by palpation, and almost always accompanies these tumors, will facilitate the diagnosis. If the sound has been introduced into a uterus affected with a fibrous tumor, the tumor will not change place even after the complete introduction of the instrument, while in a flexion of the uterus, the body of this organ escapes from the exploring finger so soon as the sound has passed the place of flexion.

We should also mention a sort of tumor which has been sometimes taken for fibroids of the uterus, the differential diagnosis of which often presents great difficulties: these are the **ovarian tumors.** We ought first to consider those cases in which hard tumors of the ovaries (carcinomata, sarcomata, fibrous tumors) closely simulate, by their hardness, a fibrous body of the uterus. The resemblance is the more complete, as the ovarian tumors in question often occupy from the commence-

ment the median line of the body, and present an unequal and mammillated surface, as is observed in the fibrous bodies of the uterus formed by the aggregation of several tumors. The most important point for the diagnosis is that here the pains are not by any means so intense as in cases of fibrous tumors of the uterus, at least until the ovarian tumor has attained a very considerable volume, and has been accompanied by repeated peritonitis. A disagreeable feeling of weight and fullness in the pelvis, a pressure of the bladder and rectum, neuralgic pains in the lower extremities, are often experienced by the patients. The painful uterine colics the menorrhagia and metrorrhagia, as well as the abundant secretion of the uterine mucous membrane are ordinarily absent, or at the most they are met with in cases where an alteration of the tissue of the uterus accompanies the disease of the ovary. Moreover, by internal exploration the vaginal portion will be found sometimes in the normal state, sometimes very high in consequence of the secondary elevation of the uterus. It is also shortened, and, as it were withdrawn into the superior wall of the vagina, which is itself considerably lengthened. Ovarian tumors of some size cause, moreover, various displacements of the uterus which are recognizable by the touch. Most frequently the organ is pushed toward the side opposite to the tumor, at other times it is located above the uterus, which then compels it to take an almost horizontal position, and in this case, we can with the extremity of the finger follow the outlines of this organ from its vaginal portion to its summit. In these exceptional cases, it also happens that the tumor passing the superior strait of the pelvis, and developing itself in the abdominal cavity, pushes up the uterus to such a height above the symphysis pubis that we can, through the thin and slightly tense abdominal walls, easily recognize the outlines of the womb and of the tumor situated behind it. If all that we have said is considered, regarding the manner in which the uterus behaves in relation to ovarian tumors, in the majority of cases we shall be sure not to commit errors in diagnosis; and it will never be necessary to have recourse to the uterine sound, the employment of which, when the existence of a fibrous tumor of the womb is suspected, ought always to be adopted with the greatest precaution.

As hard tumors of the ovaries may in some cases be taken for fibrous bodies of the uterus, so in other cases we may easily confound with ovarian cysts softened fibrous tumors, much infiltrated with serum or presenting cavities filled with liquid, and which to the touch are soft, and often evince a marked fluctuation. But, unless in very rare exceptions, tumors of this nature are only met within the proper tissue of the uterus or under the mucous membrane, and then we always observe the symptoms so often mentioned (uterine colics, metrorrhagia, etc.), as well as alterations in the form of the inferior segment of the uterus and of the neck, which are never met with in tumors of the ovary. We do not wish, however, to deny that cases may exist in which gynecologists, even the most skillful, may fail to arrive at a correct diagnosis, but these cases are certainly exceptional, and an attentive and prolonged observation of the progress of the disease will almost always result in the removal of all doubts. Finally, a uterus affected with a fibrous tumor is often confounded with a pregnancy. Such an error is easily made, when the fibroid is profoundly buried in the substance of the uterus; when it is very friable and yielding; when the form of the uterus is oval and regular; when the vaginal portion is considerably shortened; and also when, as sometimes occurs in fibrous tumors of the uterus, the uterine bruit may be heard through the abdominal walls. Although in the majority of such cases the increase in the volume of the tumor is much slower than the course of a pregnancy, and the disease is ordinarily accompanied by accidents foreign to a normal gestation, it cannot be denied that, in such circumstances, the diagnosis often presents very great difficulties; which a prolonged observation of the disease can only overcome.

Terminations and Prognosis.—In describing the anatomical characteristics of fibrous bodies of the uterus, we have already indicated the metamorphoses which these tumors may present during the life of the patients. From our description, it may be seen that a natural cure by a slow absorption of the tumor is altogether an exceptional circumstance which is never observed except after a parturition and under particularly favorable circumstances. The cases in which the fibrous body, in consequence of the suppuration and decomposition of the

tissue which envelops it, is detached from the wall of the uterus, and where, after having fallen into the cavity of the organ, it has been finally expelled by uterine contractions, are quite as rare. We cannot even consider this termination as favorable, for in the majority of cases the hæmorrhages and the abundant wasting which accompany them, the inflammations of the uterus and of the peritoneum, and finally, the pyæmia which results therefrom, place the life of the patient in imminent danger.

But if fibroids of the uterus are accompanied by very sharp pains, and if a cure by natural or by artificial means, is very rare, we must, on the other hand allow, that they do not ordinarily undergo alterations capable of affecting the organism in such a manner as to put the life of the patient immediately in danger. Proceeding from this point of view, we may place fibrous tumors of the uterus in the class of benign tumors, and in fact, there are cases where the disease continues for years without making any sensible progress. This is particularly seen in aged women, where the tumor is deprived of the nutritive material necessary to its ulterior development in consequence of the absence of the menstrual congestions. It is often the same also with sub-peritoneal tumors which are ordinarily not very vascular. They also have a slower development and often remain stationary when they have attained a certain size. The prognosis of fibrous bodies is more unfavorable when they are developed in a young woman still having her menses, and when they are interstitial. For then the medium in which they take root, can, by the great number and importance of its vessels, abundantly provide for their nutrition. This sort of tumor always attains the most considerable volume, and, like submucous tumors, they so much the more affect the health, as the abundant hæmorrhages which they often occasion, continually impoverish the mass of the blood and undermine the strength of the patients. A fatal issue immediately following hæmorrhage, must be regarded as an exception. At least, notwithstanding the great number of fibrous tumors which we have treated, we have only once observed it. On the contrary, it is very frequent to see considerable losses of blood lead to a premature marasmus and to other maladies incompatible with the continuation of life.

In all these cases, after having once recognized with certainty the presence of a fibrous tumor, we should pronounce an unfavorable prognosis, for experience has sufficiently demonstrated that the intense sufferings caused by this disease are not susceptible of being relieved in a permanent manner.

Although there exist observations according to which the presence of a fibrous body in the uterus does not prevent fecundation, we may however affirm that these are exceptional cases, the disease, when it has attained a high degree, being accompanied by sterility. If ever conception takes place, the hæmorrhages caused by the tumor and augmented by the physiological hyperæmia of the walls of the uterus are a frequent cause of abortion, and if this is not provoked, the irregular dilatation of the walls of the uterus may, in consequence of excessive distention limited to certain points, give rise to lacerations, and even to complete ruptures of the tissue of the uterus.

Treatment.—After what we have said upon the progress and termination of the disease we are now considering, it is evident that we cannot easily obtain a radical cure. Different methods of treatment are often recommended and different remedies to stimulate the absorption, among which the use of iodine and its preparations, sea baths, and saline baths rich in iodine or in bromine, occupy the first place. But if we would remain faithful to the truth, we must avow that we do not remember a single case in which, with the means indicated, or with others, we have obtained the complete cure of a fibrous body; and if in various quarters fortunate cases of cure are cited, we must, if the tumor has really disappeared, doubt the accuracy of the diagnosis as to the fibrous nature of the malady. We even believe that it is not possible, by therapeutical means, by baths, etc., to obtain a sensible diminution in the volume of a real fibrous tumor; and it is very probable that in the cases where the tumor seems to be smaller after a prolonged treatment, we should refer this reduction of volume to the diminution of the hypertrophied tissue of the uterus, a result which may really be obtained by the means which we have indicated. Furthermore, it is certain that even this measure of success, though apparently so little important, is capable of perceptibly moderating, and for a considerable time,

the sufferings of the patient, inasmuch as this diminution of the volume of the uterus not only suffices to remove several of the troublesome symptoms of the pressure, but may also, as experience has demonstrated, moderate the very painful uterine colics. The contraction of the calibre of the vessels of the walls of the uterus, and the disappearance of the troubles of the circulation caused by the compression of the womb, sometimes make the hæmorrhages sensibly diminish. It is for these reasons that we declare ourselves also in favor of treatment stimulative to absorption, and among the means which enter into this category, we prefer the use of hip-baths or entire baths of tepid water mingled with natural or artificial sea-water, and a residence at the baths of Kreuznach, Kissingen, Reichenhall, Krankenheil, or other saline waters. The action of these baths should be seconded by frictions with an unguent of iodine or bromine upon the region of the tumor, and by the application upon the abdomen of cloths many times folded and soaked in very hot sea-water. Finally, we ought to mention the procedure recommended by Rigby, which we have many times employed with unquestionable advantage. It consists of injecting into the uterine cavity a mercurial ointment, mixed with iodide of potassium, melted together over the fire and then partially cooled. In two cases where we had occasion to employ this remedy several times, the diminution of the volume of the uterus was striking and rapid, and was accompanied by a durable amelioration in the state of the patients. We have never obtained any result from the internal exhibition of iodine or the iodized mineral waters.

Local blood-lettings often repeated greatly favor the diminution of the volume of the womb, which is sought to be obtained by the means indicated. We should never neglect them when the periodical hypertrophy of the womb, which ordinarily precedes menstruation and which is often accompanied by an exacerbation of all the symptoms, indicates in a certain manner the presence of the uterine congestion; for certainly the increase of this circulation supplies the tumor with a great abundance of the elements of which it is composed. In such cases, the repeated application of leeches on the neck is on the one hand the best prophylactic against the ulterior develop-

ment of the tumor, and on the other, we almost always obtain by this means a dimination of the pains. We have indeed proved by experience that there is no other means which more surely prevents the return and the prolonged duration of menorrhagia and metrorrhagia, than the blood-lettings, to which we should always have recourse so long as a high degree of anæmia is not a certain contra-indication.

If we meet with this last disease, we should attempt to effect the amelioration of the character of the blood by means of a proper regimen and preparations of iron, and so soon as that can be accomplished, we should proceed to slight sanguineous emissions from the inferior part of the womb. We can even recommend this procedure as a direct hæmostatic, for we possess a considerable number of observations where uterine hæmorrhages, small in quantity but long in duration, which had obstinately resisted all the remedies employed against them, immediately ceased after the application of a few leeches to the uterine orifice.

If the remedies indicated are not sufficient to moderate the periodic pains caused by the distention of the tissue of the uterus, it is necessary to resort to means purely palliative. When there is not a great tendency to hæmorrhage, a hot bath will the most speedily attain this end; but if we cannot order it on account of the presence or the fear of a hæmorrhage, we should make use of narcotic remedies, which may be either internally administered or given in the form of an unguent or a lavement.

Abundant menorrhagia or metrorrhagia demands the employment of cold injections which may sometimes contain some styptic remedy, as, for example, perchloride of iron, alum, ergotine, etc.; in extreme cases we may introduce into the vagina a tampon of lint or a piece of sponge. [This tampon or piece of prepared sponge will serve a still better purpose if passed into the cavity of the neck of the uterus.] Among the internal medicaments, the acids, secale cornutum, rhatany and tannin, are the surest, and in many cases we have had prompt results by ordering as a lavement an infusion of spurred rye. The leucorrhœa, which is often very abundant, and sometimes possesses a disagreeable odor, is rarely absent in the course of a

fibrous tumor of the uterus, and demands the most scrupulous cleanliness of the genital parts. For this purpose injections and hip-baths are requisite. We should here observe that water of too low a temperature often excites painful contractions of the womb; therefore it is better to commence with a higher temperature, and only little by little to diminish the heat of the water. We should not look for a radical cure of the leucorrhœa on account of the hyperæmia which always accompanies fibrous bodies. If, in the course of the disease, the symptoms of a partial peritonitis are observed, the anæmic state of the patients is ordinarily a contra-indication to a free sanguineous emission from the abdominal walls. We thus find ourselves compelled to employ narcotic remedies, warm baths and solvent cataplasms, to moderate the intense pains. Sometimes in such circumstances a few leeches applied to the neck give prompt relief.

It is the same when a congestive tumefaction or a very rapid increase in the volume of the tumor cause a strong compression of the uterus upon the neighboring parts. We may perhaps sometimes succeed in pushing above the superior strait of the pelvis the tumor impacted within the pelvic cavity; but this should by no means be considered as the rule.

Latterly, in various quarters, an operation has been proposed and executed for removing fibrous bodies from the uterus. It has been wished to remove these tumors either by the abdominal cavity, after having first performed laparotomy, or by the vagina. Experience has for a long time rejected the first of these methods, for there is not a single authenticated fact admitted where a woman operated upon in this manner has survived; the second procedure does not appear to us to be justifiable, except in very rare cases, and as for ourselves we would not employ it, except when the tumor going off from the vaginal portion freely projects into the vagina. [The remarks of the author relative to the removal of fibrous bodies of the uterus by the operation known as ovariotomy, are so sweeping, that it seems unavoidable to correct what, in this country at least, is an erroneous statement. In 1851, Dr. Atlee,* of Phi-

* The surgical treatment of certain fibrous tumors of the uterus, etc. Prize essay, Transactions of Am. Med. Ass., 1853.

ladelphia, published a table of all the known operations performed up to that date, for ovarian diseases and fibrous tumors developed from the uterus. The operations were 222 in number, of which 146 recovered and 76 died. Since that time he has himself operated 38 times. Dr. A. writes to us of this operation, June 25, 1860, as follows: "I am satisfied that the position of ovariotomy is better than it was when I published my table of cases a few years ago. The German mortality is excessive, and there must be a fault somewhere. Their great dread of making a more free opening into the abdominal cavity, and their method of managing the pedicle, may have much to do with their want of success.

"Three years ago I introduced some improvements into the operation, which I am satisfied will greatly lessen its mortality. These are principally the use of the écraseur for dividing the pedicle, and the application to all bleeding vessels of the perchloride of iron, with persulphate as a styptic. The great objection to the ligature is, that it not only strangulates the peritoneum, but it leaves a sloughing stump, both of which are constant foci of irritation. By means of the écraseur and the styptic, all ligatures are avoided. I have repeatedly adopted this plan, and with more and more confidence, and cases have recovered which I think would not under other circumstances. The recovery takes place as after the most simple wound." We have but once been witness to this operation (when we assisted Dr. Chas. A. Budd, of New York), and that an unsuccessful one, although the death occurred not from hæmorrhage or inflammation, but from a concealed affection of the lungs, the right chest being completely filled with serum, and the lung compressed and impervious to air. Still we are in certain cases in favor of the operation, where the tumor has no adhesions, is evidently benign, where there is no accompanying disease of moment in other organs, and where the operation is with these favorable auspices insisted upon by the patient, fully aware of the imminent risk which she runs. For further particulars upon this operation the reader is referred to the subsequent chapter on ovarian cysts.] We could not easily decide to venture to extirpate a sub-mucous fibrous tumor, as has been proposed by Amussat, Kiwisch and others, not

only because we regard this operation as very hazardous and dangerous, but also because we have no means of convincing ourselves in advance of the possibility of its execution. Furthermore, the extirpation of these tumors has been recommended in those cases where a profuse hæmorrhage has threatened the life of the patients already anæmic. But if it is considered that the cases in which we are not able to arrest a hæmorrhage are extremely rare, and that, on the other hand, we can never calculate the loss of blood which will result from the operation, though it will always be considerable, we shall certainly arrive at the conviction that the procedure in question will be rarely if ever proper and justifiable.

[In sub-mucous, and occasionally in the interstitial form of uterine fibrous tumors, where the hæmorrhage proceeds from the congestion of the uterus, caused by the pressure of the fibrous body upon the vessels, this hæmorrhage is sometimes completely arrested by making a long and free incision completely into the tumor, no injury arising from the depth into the tumor to which the knife may penetrate. After the first slight hæmorrhage, no further bleeding is perceptible for some time, until the cut surfaces again unite. As a secondary result, the tumor sometimes pushes itself out through the incision, partially or completely enucleating itself, and may thus by a comparatively simple operation be safely removed. If the condition of the os uteri will not admit of a free examination and the performance of this simple operation, it should be previously dilated by means of sponge tents. Should serious hæmorrhage accidently occur from the division of a vessel of unusual magnitude, the plugging of the cervix uteri and vagina will effectually prevent any bad result.]

B.—Fibrous Polypi of the Womb.

Pathological Anatomy.—Fibrous polypi of the uterus are neoplasms ordinarily pyriform, cylindrical, but sometimes also completely spherical, adhering to the walls of the uterus by a pedicle relatively narrow. They are in great part formed of cellular tissue, and do not differ in reality from the fibrous bodies which we have just described, except by the fact that

their entire mass projects into the uterine cavity, and that they are pediculated; while fibrous tumors, even the submucous variety, have a larger or smaller part of the tumor always concealed in the proper tissue of the uterus.

The structure of these tumors varies with the degree of their vascularization, and with the primitive direction of the fibres. The surface of the polypus is often even, without furrows or elevations. It is as if formed of a single mass, and in this case, we sometimes find, as in certain forms of fibrous bodies, a concentric organization around a single point. Polypi are ordinarily very hard, slightly vascular and generally almost spherical. At other times the direction of the fibres is rather parallel or divergent radiating. They surround a considerable number of vessels often of quite a large size. It is not rare in this case, that the face of the tumor turned to the side of the uterine orifice is irregular, serrated in many places and even deeply grooved. When the elements which compose it present such an organization, the tumor is ordinarily elongated, pyriform, cylindrical, club-shaped, and its consistence is less firm.

The pedicle of polypi is sometimes entirely separated from the rest of the tumor; sometimes its thickness increases little by little, and the transition is imperceptible. Its size varies very much; but, generally, we may say that it is with long polypi less strong than with those whose form is spherical. These, in fact, are often attached to the internal surface of the uterus by a pedicle which often attains the thickness of one to one and-a-half inches. The pedicle is most frequently simple; but cases, however, exist where it is divided into two or even three roots.

The insertion ordinarily takes place into the superior part of the uterus, and, from our observations, oftener to the posterior than to the anterior wall. It is more rare to see fibrous polypi adhere to the neck or the orifice of the uterus, where the mucous polypi are the most frequently perceived, of which we shall hereafter speak. The size of fibrous polypi varies from that of a pea to that of a child's head, and is sometimes greater still. The alterations of the uterus resulting from the presence of a voluminous polypus are almost the same as those

which we have had occasion to describe in speaking of the anatomical characteristics of fibrous bodies. The dilatation of the cavity of the uterus; the hypertrophy of its walls and the augmentation of its volume; the catarrhal inflammation of its mucous membrane, increase by reason of the development of the polypus, and the most important difference which the womb presents is that the shortening of the vaginal neck, and the opening of its orifice are more prompt for a polypus than for a fibrous body. These alterations of the inferior part of the uterus result, as in the course of an accouchement, partly from the strong contractions of the uterine walls and partly from the dilatation of the orifice in consequence of the pressure exerted by the tumor which always augments in that direction. The contractions push the polypus with force against the orifice, and thus it happens that after a longer or shorter duration of the disease, we can see it partially or even completely—when the place of its insertion is in the inferior part of the womb—descended into the vagina through the dilated orifice. Sometimes even, when it has attained a considerable volume, it almost fills the cavity of the pelvis.

The very great vascularity of the parenchymâ and of the mucous membrane of the uterus; and the chronic engorgement of this organ, resulting from troubles in the circulation, are often the cause of ruptures of vessels and of hæmorrhages, which are recognized at the autopsy by the presence in the interior of the uterus of more or less voluminous clots of blood.

Polypi of great size always cause a compression of the neighboring organs, particularly of the rectum and the bladder. Consequently, we need not be astonished that the circulation in these organs undergoes various changes, which in their turn, are the cause of varicose dilatation of the veins, of chronic hyperæmia and of catarrhal hypersecretion of the mucous membrane. Fibrous polypi may present all the same metamorphoses as fibrous bodies. Most frequently a suppuration is observed and a superficial dissolution of the tumor. This is especially the case when the polypus, after having passed through the uterine orifice, remains a long time in the vagina and is exposed to the influence of the atmospheric air, and of the different

matters undergoing decomposition, secreted by the genital organs. It is rare to encounter a gangrenous alteration, a mortification of the tissue of polypi. We have only observed this once in a case where a polypus almost as large as the head of an infant, had for a long time undergone a severe compression from the walls of the pelvis. We have never seen ossification of a polypus, though it is often observed in fibrous bodies. We would not, however, deny the possibility of its existence. The formation of cavities filled with blood is even more rare in the tumors in question, than in those which we have previously described. During pregnancy fibrous polypi often show an augmentation and a dilatation of their vessels, in consequence of which they rapidly increase in size, and at the same time appear softened and tumefied. This, however, is not always the case, as some authors have affirmed. In support of what we have said, we may cite the case of a woman in whom, previously to conception, we had diagnosticated a polypus. It was larger than a pigeon's egg, and during the pregnancy it entered entirely into the uterine cavity, and after parturition at full time, presented exactly the same size as before.

Symptomatology and Diagnosis.—The first symptoms are ordinarily disturbances in the course of menstruation and of the mucous secretion of the uterus. The menstruation returns at first at peculiarly close intervals; it is ordinarily abundant, and the blood which flows contains clots in more or less number. In the intervals the mucous secretion of the uterus is more or less abundant, and often at this period of the disease a flow is already met with, sometimes copious, of a reddish liquid like to that which flows from a piece of fresh meat. There are also detached larger or smaller flakes of the uterine mucous membrane.

After a longer or shorter duration of the local symptoms, the anæmia continually becomes increasingly abundant, and it is not rare for patients affected with polypi of the uterus to complain to the physician of palpitations of the heart, cephalalgia, cardialgia, lassitude, dyspnœa, and the long series of the symptoms of anæmia, while they do not even mention, except casually, the affection of the genital organs.

The time of the appearance and the degree of violence of

the pains caused by polypi of the uterus greatly vary. We remember to have seen women affected with polypi from the size of a hen's egg to that of a man's head, absolutely deny that they had any pain, a fact which, as we shall see hereafter, is not without importance for the differential diagnosis of polypi and interstitial fibrous bodies.

The pains caused by the presence of a polypus of the womb have the character of uterine colics. They are painful contractions like those of child-birth, starting from the sacrum and radiating toward the hypogastrium, and even toward the thighs. In many cases which we have observed, the contractions of the uterus which give rise to the paroxysms were so internal that we could easily recognize them as well by the hardness of the body of the uterus as by the contraction of the orifice and the tension of its borders.

During the course of the disease, the symptoms caused by the pressure of a voluminous tumor upon the organs of the pelvis, and principally upon the rectum, are added to these painful contractions. An obstinate constipation, a varicose dilatation of the veins of the rectum, or distressing hæmorrhoids, accompany the disease. It is more rarely that the functions of the bladder are disturbed; in fact, some of our patients have only complained of a frequent desire to urinate, and only those with whom the polypus had attained a very considerable size. We think that we should explain the relative immunity of the bladder by the fact that the tumor, after having escaped from the uterus, generally increases backward in the direction of the sacrum, and thus presses upon the rectum rather than on the bladder.

The symptoms which we have indicated, if they are all found existing in most of the patients affected with uterine polypi, do not however suffice to establish a certain diagnosis, nor can we attain it, except by a very attentive internal examination. We should never dispense with palpation of the hypogastrium. Still we do not think that this means will be truly useful for the diagnosis, for we have been many times convinced that notwithstanding the presence in the vagina of polypi of the size of the fist, we could not by palpation recognize any augmentation of volume in the womb, and even if it had been

demonstrated, we could not thereby infer with certainty the presence of a polypus. This method will not be of real value, except in cases where we have to diagnosticate an intra-uterine polypus from an interstitial fibrous body.

The principal thing is, as we have already said, an attentive and exact internal examination.

The result of the exploration will differ according as the polypus is found to be still in the uterus, or to have descended more or less into the vagina.

When from the presence of an intra-uterine polypus the inferior portion of the uterus accessible to the touch, is more or less dilated by reason of the volume of the tumor, it is ordinarily very compact and resisting, and the vaginal portion, which is generally slightly displaced backward, is shortened. Indeed, it has sometimes completely disappeared. In this case the orifice is sufficiently opened to allow the exploring finger to be passed within. It then immediately meets the hard body inclosed in the uterine cavity; and if the borders of the orifice are somewhat supple and extensible, we can often pass the finger around the base of the tumor, and thus obtain an approximative idea of its shape and size. In women who have never had children, the borders of the orifice are ordinarily at this period of the disease so distended, and so closely applied to the tumor contained in the cavity of the womb, that the end of the finger can scarcely be introduced to the depth of two to five lines. However, in such cases, the simple certainty of the presence of a compact tumor giving rise to hæmorrhages of long duration, and to an abundant leucorrhœa, sometimes suffices to assure the diagnosis.

But if the os tincæ is hermetically closed, the diagnosis will be uncertain, for the symptoms which the physician observes and of which the patient complains, are also met in other diseases of the uterus.

Polypi may, in the first place, be confounded with **chronic engorgement of the uterus.** This disease is indeed very frequent; but to avoid error in the diagnosis, we should remember that such abundant hæmorrhages as those which accompany polypi are very rarely met with in engorgements of the uterus, and that the shortening and diminution of the

vaginal portion is never so considerable as in the disease which now occupies our attention. On the contrary, the hypertrophy of the uterus which accompanies engorgement is more marked in the neck of the uterus, which is found voluminous, tumefied and ordinarily very compact.

Polypi and **fibrous bodies** of the walls of the uterus are both accompanied with dilatation of the womb, abundant hæmorrhages and painful contractions. But the dilatation of the uterus caused by polypi is more regular, and nowhere, unless the two diseases are complicated together, will a limited spherical, mammillated tumor be discovered in such a manner that by palpation of the womb we may with certainty infer the absence of a sub-peritoneal fibrous body. It is necessary, perhaps, to except the cases in which such a tumor is situated in the posterior and superior part of the uterus, and is not accessible either through the abdominal walls, or by the vagina, or by the rectum. There remains nothing then, but to decide whether the symptoms observed might not result from the presence of a fibrous body, either interstitial or submucous. Our experience, that the interstitial fibrous bodies are accompanied by very intense pains, but ordinarily with no very abundant hæmorrhages, is not without importance, and as to the differential diagnosis of a submucous fibrous body. and an intra-uterine polypus, we possess a sufficient means of determining it by the forced dilatation of the uterine orifice by the introduction of a piece of prepared sponge.

We have described in the second chapter of this work the process we employ for the application of the prepared sponge.

The sponge so introduced ordinarily provokes contractions, some hours after its application. These pains gradually increase in intensity, and are accompanied by a constantly augmenting dilatation of the uterine orifice. The sponge at length falls into the vagina, and must be replaced by a new piece until the necessary dilatation is attained. We can warmly recommend this treatment, which we have had occasion to try many times. For it singularly facilitates the diagnosis, and after its application, we can sometimes succeed in extirpating a polypus which otherwise would have still remained in the uterus.

When, in this manner, we have discovered an intra-uterine polypus, and ascertained that the tumor is accessible to the touch, we must then find out whether it is pediculated or whether we have to do with a sub-mucous fibrous body projecting into the cavity of the uterus. If the insertion of the tumor is within the reach of the exploring finger, the diagnosis will not present any difficulty. But when it is not so, either from the narrowness of the orifice, and the firmness of its borders, or by reason of its too high insertion, we might try to clear up the diagnosis by the uterine sound. We must add, however, that this method does but occasionally give us a satisfactory result. We have, indeed, in the majority of cases, recognized the place of its insertion, still we have by no means, been always able to obtain a clear idea of the method of its insertion and especially of the thickness of the pedicle.

We have sometimes succeeded in determining this last point, by the following method. Having seized by means of a polypus forceps, or a ratchet forceps (Fig. 44) the portion of the tumor situated in the uterine orifice, making it several times describe a movement of semi-rotation. If the pedicle of the tumor is small, it follows the movements of the instrument with facility, while if the pedicle be thick, or if the tumor be a fibrous body, it opposes considerable resistance to our manipulations.

It is important in distinguishing a polypus with a large base from a fibrous body, to remember that the majority of polypi have an elongated form, like a club, so that the exploring finger, following the outline of the tumor, can ordinarily recognize the progressive diminution of its thickness. Furthermore, it should not be forgotten that fibrous bodies, when not very voluminous, do but very rarely make such a considerable projection into the uterus as to be accessible to the touch. We shall generally not be misled if we consider as a fibrous polypus and not as a fibrous body, a compact tumor resting upon the inferior portion of the uterus and which may be reached by the point of the finger.

Polypi protruding from the uterus and hanging in the vagina, offer fewer difficulties for diagnosis. For one can easily reach the tumor and follow its outlines sufficiently high up, sometimes

even as far as the uterine orifice which surrounds the pedicle Nevertheless, there are also cases where the diagnosis of these extra-uterine tumors present certain difficulties.

The diseases which may mislead us are especially **inversions of the uterus** which have sometimes been taken for polypi, and vice versâ.

Here the commemorative signs are often very important for the diagnosis. In fact, no one would think of the presence of an inversion, if the patient had never been parturient; or if, since the last labor, a considerable time had elapsed before the appearance of symptoms of a disease of the uterus. It would also be very improbable that we should meet with inversion of the womb, when the labor had previously been always normal, or at least had not been accompanied by such accidents or disorders as are the ordinary causes of inversions. External exploration is also important for the diagnosis; for when through the abdominal walls we have recognized an augmentation of the volume of the uterus, we shall of course exclude the possibility of an inversion.

But if the indicated means do not suffice to establish the diagnosis, we should never neglect exploration with the uterine sound. We can, in fact, almost always, in spite of the presence of a polypus, introduce the point of the sound sufficiently far into the uterus to determine the dilatation of its cavity, while in the case of an inversion, the point of the instrument being first passed through the orifice, will meet with an obstacle in the inverted wall of the uterus. However, we should not forget that, even when a polypus is present, a like obstacle may be experienced, if by chance the point of the instrument is directed exactly upon the insertion of the polypus. Consequently, when such an obstacle is met with, we shall do well to introduce the instrument several times and in different directions.

It is certainly very rare that a large polypus descended into the vagina should be taken for an enlarged uterus. That would not be possible except when larger or smaller portions of the tumor may be detached in consequence of ulceration or a putrefaction; for the polypus will then present upon its inferior surface a more or less deep hollow, which, after a careless

examination, might be confounded with the uterine neck surrounded with cancerous material. But as in this case it is ordinarily possible to explore the vagina along the tumor, even to the uterine orifice, which sometimes indeed is very high up, this error of diagnosis will not be easily made, however limited may be our experience in exploration.

On this occasion we will mention a case where the inferior surface of the uterine polypus presented a peculiarity which we have noticed but once, and of which we have nowhere found any description. In this case, the primitive organization of the fibres of the tumor formed a fossa so much resembling the uterine orifice, that at first we might have mistaken the polypus for a hypertrophied uterus low down in the pelvis. But in this case also the presence of the real orifice surrounding the pedicle of the tumor, did not leave any doubt as to the diagnosis.

One must possess no experience to be in danger of confounding with **prolapsus of the womb** a polypus hanging in front of the external genital organs, for in a descent of the womb the uterine orifice would always be recognized by an examination, however slight.

Prognosis.—We have already described the alterations which fibrous tumors may present during the life of the patient. It clearly results from this account that the natural cure of these tumors, in consequence of a spontaneous detachment, is extremely rare. Such a detachment will not take place except when the pedicle of a very voluminous tumor, descended into the vagina or before the external genital organs, is broken by the proper weight of the tumor, or when it is little by little cut by the spasmodic contractions of the orifice acting in the manner of a ligature. Finally, it may happen that a suppuration, a superficial decomposition of the tumor spreads even to the pedicle, and thus brings on a destruction of the entire mass of the polypus. When once the pedicle is separated, the contractions of the uterus ordinarily suffice to expel the foreign body from the cavity, and if it is not very voluminous, the contractions of the vagina, strengthened by the abdominal pressure, are sufficiently strong to complete the expulsion of the neoplasm.

It is surely to such cases that a great number of observations belong, the most of them ancient, according to which there had been expelled in this manner bodies of more or less volume, fleshy, and even sometimes ossified, to which had been given the name of **uterine calculi.**

The suppuration and decomposition of uterine polypi, without speaking of the abundant hæmorrhages which sometimes accompany them, may have an injurious influence upon the general organism. The corrosive sanies which thus comes in contact with the walls of the uterus, excites a parenchymatous inflammation, in consequence of which we often observe in the vessels of this organ the particular state which is designated as uterine phlebitis, and finally pyæmic accidents with fatal termination.

We have even met in one case, in consequence of a sphacelous inflammation of the uterine tissue, a complete perforation, after which a fatal peritonitis was developed.

But, setting aside these sufficiently rare degenerations of the polypi of the uterus, there is no doubt that these tumors, after a longer duration will, sooner or later, bring on a sensible diminution of the forces, in consequence of the more or less copious losses of blood, and from the more or less abundant and continual secretion from the mucous membrane of the genital organs. It is true that on that account life is not in imminent danger; still marasmus necessarily results accompanied by the most various symptoms, particularly those of anæmia. The size of the polypus does not always indicate the degree of bad influence which it exerts upon the general organism, for it is not rare to see small polypi of the size of a pigeon's egg to that of a small apple, give rise to hæmorrhages more considerable than tumors of the size of a hen's egg to that of a man's head. In general, they are in this respect much more dangerous in young women who are still menstruant than in those in whom the critical age is passed, the menstrual congestions having either entirely ceased, or at least continuing with less intensity. It is remarkable that, even in aged women, the hæmorrhages caused by the presence of uterine polypi are repeated exactly at the menstrual periods previously observed, and we have often met with women more than fifty years of age, who think they have

their turns, while by exploration the cause of the hæmorrhage is recognized to be the presence of a polypus, after the extirpation of which the effusions of blood completely cease.

It results from what has been said that the presence of a polypus is incompatible with good health, and that we cannot have any hope of a complete cure without the extirpation of the tumor. When we have accomplished this, the patient may be considered cured, or at least almost so; for the late investigations upon this subject have demonstrated in an indisputable manner, that for a polypus once extirpated there is no return. Even the remains of the pedicle which may have continued in the uterus, either disappear shortly after the operation, and are indistinguishable from the proper tissue of this organ, or they are expelled by the suppuration which accompanies the cicatrization of the wound. In cases where, at the end of a longer or shorter time after the extirpation of a polypus, it shows itself anew, we must always consider that it is not a return of the former, but a tumor which began to form at the same time as the other, and did not develop until after the operation, or else its origin goes back to a period more or less long after the extirpation.

Treatment.—As for the treatment of polypi, it is now universally agreed that the only possible cure is by extirpation. Until now, surgeons and gynecologists have not been able to agree which is, among the known operations, that which offers the greatest advantages. Still there are some, principally among the old practitioners, who prefer the ligature to excision or torsion; others esteem the two latter methods as preferable.

Considering this question in an impartial manner, we arrive at the conclusion that no one of the methods indicated is equally good in all cases, and that the chances of success in the several methods depend upon the intra- or extra-uterine situation of the tumor, its size, the thickness of its pedicle and the facility with which the place of its insertion may be reached.

The number of patients whom we have treated and operated upon being great, we may venture to pronounce upon the value and utility of these different operations. We do not,

however, think that we have foreseen all the possible cases which up to the present time we have not observed, or that we have taken account of them as much as might have been desired in a practical point of view.

If the ancient motto of surgeons—*citò*, *tutò*, *et jucundè*—should be applied to the operation for polypi of the uterus, without doubt their excision would be preferred to all other methods, and in fact if this procedure were alike applicable to all cases, ligation and torsion would now be completely abandoned. The advantages of excision are, first, that the end is thus attained in the most prompt manner possible; secondly, that by this means any considerable injury of the walls of the uterus may be avoided; and thirdly, that we can almost always succeed in arresting any excessive hæmorrhage from the vessels of the pedicle. If we compare excision with ligation, the latter means should give place to the first by reason of the considerable interval which elapses between the application of the ligature and the complete detachment of the polypus, during which the patient cannot easily quit her bed, on account of the putrid and fetid discharge which occurs during the last days, and which often occasions inflammation of the internal surface of the uterus, of the vagina and the external genital parts. The application of the ligature, however effected, often presents great difficulties, and in some cases very violent hæmorrhages result therefrom; the patients are not, moreover, by any means, after the extirpation of the tumor, free from danger of hæmorrhages, and the convalescence, as we have twice seen, is liable to be disturbed by metritis, or peritonitis, or even by pyæmic accidents. If we consider all the disadvantages inseparable from the ligature, we shall not be long in doubt as to whether ligature or excision generally deserves the preference. In the thirty-one patients affected with polypus which we have been called to treat, we used the ligature only three times. In these three cases the thickness of the pedicle prevented our having recourse to torsion, and excision was also impossible, because the insertion was in the superior portion of the body of the uterus, and was accessible neither to the fingers nor the scissors. We think that these are the only circumstances which can justify the use of the ligature, particu-

larly when the polypus adhering to the fundus of the uterus still remains in the fundus of this organ, and cannot be dragged in front of the external genital organs (by means of Muzeux's hooked forceps or ordinary forceps) without danger of an excessive inflexion of the walls of the uterus.

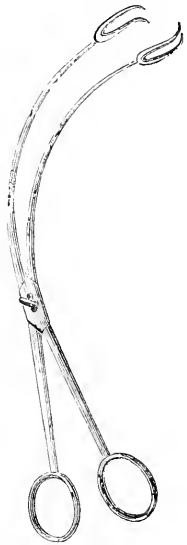

Fig. 40.—Muzeux's hooked forceps.

We have indicated above the manner which appears to us most proper for obtaining as correct an idea as possible of the thickness of the pedicle. If after having, as we have said, seized the polypus with a strong forceps, some slight movements of semi-rotation having allowed the conclusion, with some probability that the thickness of the pedicle is not very considerable, we should always prefer torsion to the ligature, even for voluminous intra-uterine polypi. The fact that out of our thirty-one patients, the three operated upon by the ligature alone had, during and after the operation, any serious accidents, is evidence in favor of this assertion.

If, on the other hand, we consider the entirely satisfactory results which we have obtained by the other operations (after which the longest convalescence did not continue more than a fortnight) without our having once noticed serious accidents, we certainly shall be right if we narrow into the very restricted limits above indicated, the application of the ligature for polypi of the uterus.

When we declared above that the excision of polypi ought to be generally preferred to the two other operations, we did not mean to say that there may not be cases in which, by reason of the impossibility of performing excision, torsion ought to be preferred. We have ten times performed this latter operation, four times for mucous polypi and six times for fibrous polypi. The impossibility of reaching the pedicle of the tumor with scissors, which, as we convinced ourselves in the manner above indicated, did not present a great thickness, was the indication for this operation. Although torsion has never given us any but satisfactory results, we, however, always prefer excision

whenever it is possible; for one can never prevent, in a certain manner, the lacerations and ruptures of the tissue of the uterus, which may take place at the insertion of the polypus, in consequence of the violent torsion which is indispensable when the pedicle offers a strong resistance or is of any considerable thickness. We also advise, on that account, the arrest of the efforts at torsion so soon as a considerable resistance is offered to the rotations which are effected by means of a polypus forceps or a ratchet forceps. In a case where in this manner we recognized that the polypus was thicker than we had at first supposed, we seized the polypus with a hooked forceps, and together with the uterus, drew it down toward the inferior strait of the pelvis in such a manner that we could with the scissors reach the hitherto inaccessible pedicle. We strongly recommend this course in analogous cases.

As to the excision, it should be executed differently, according to the location and size of the polypus. This operation deserves, without doubt, to be preferred to every other when the polypus is voluminous; when it hangs entirely or partially outside of the uterine cavity; and when it fills more or less completely the vaginal canal. The polypus should be seized with a small forceps (that of Smellie is very suitable) or with the ratchet forceps of Luer. It is then drawn outside of the labia majora until the pedicle can be seen, when it should be cut with a bistoury, or with scissors curved upon their flat surface. In operating in this manner, we have obtained such satisfactory results, that we have firmly resolved to extirpate in this manner all very voluminous polypi, except where we are convinced by exploration, that the insertion of the tumor is in the superior portion of the body, or perhaps, even in the fundus of the uterus. In such a case, the polypus could not be drawn to the external genital parts, even when the uterus follows the traction up to a certain point, without occasioning a considerable inflexion of the walls of the womb, which may be easily reduced, it is true, after the extirpation of the tumor; still, in such cases an inflammation of the womb or its peritoneal envelope is always to be feared. But if the polypus adheres to the inferior portion of the body of the uterus, the latter easily follows the tractions exerted upon the tumor, sufficiently for the

neck to descend in front of the external genital parts, thus rendering the point of insertion accessible to view.

If it be objected to this procedure, that a permanent descent or prolapsus of the womb may result from such violent tractions, we answer that, in the two cases in which we have operated in this manner, we have not had such an unfortunate result. It has been the same with many other cases where we have been compelled to draw the uterus outside of the genital parts for the purpose of amputating the neck, or for operations for vesico-vaginal fistulas. We have, on the contrary, always observed that the uterus resumes its normal position as soon as the traction has ceased.

Fig. 41. Siebold's polypus forceps.

Fig. 42. Simpson's Polypotome

For polypi of smaller volume, from the size of a pigeon's egg to that of a hen's egg, we have always operated by excision, seizing the pedicle of the tumor between the index and median finger of one hand, upon the internal face of which we have introduced the polypus forceps of Siebold, up to the pedicle, which we carefully separated with several cuts. To extirpate a number of polypi situated upon the anterior surface of the womb, we have been singularly facilitated by causing the patient to take a quadrupedal position.

We have operated for the excision of polypi in the most varied positions. We have extirpated tumors of greater or less size, situated higher or lower in the uterus, and have never had occasion to employ any other instrument than the forceps of Siebold. We will not, however, affirm that there are not cases in which the use of other instruments recently invented, as those of Herrich, Simpson, Mikschik, etc., do not present more certainty and convenience; but such cases are certainly exceptional.

Fig. 43.—Mikschik's Instrument for the excision of uterine polypus.

When the insertion is very high up in the uterus, and the pedicle of the tumor can be reached with the finger, but neither seized nor drawn down, the operation may be much facilitated by drawing upon the polypus by means of the hooked forceps of Muzeux, with the ratchet forceps which we have often previously spoken of, or with the extractor of Luer, until we can seize and fix the pedicle with the index and median finger, after which the instrument may be withdrawn. If that is not possible, the polypus should be held by an assistant, while we operate for excision above the point retained by the fingers.

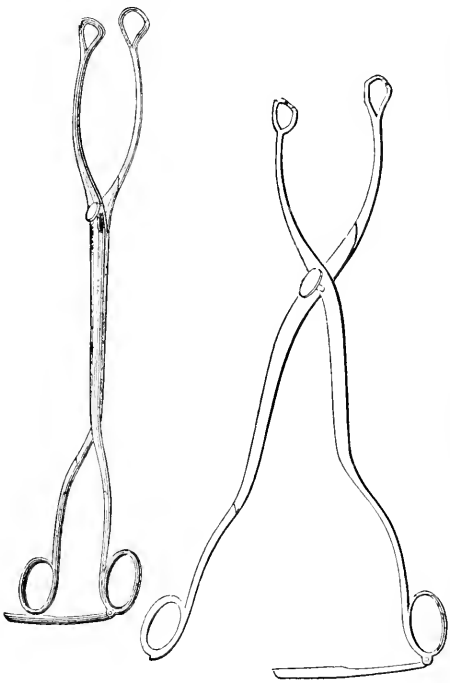

Fig. 44.—Ratchet Forceps.

With the first patient upon whom we thus operated, we expected an abundant hæmorrhage, especially as we were convinced, in examining analogous anatomical preparations, that the pedicle often incloses vessels, principally veins, of considerable size. We have been, consequently, astonished to see, in the operations which we have performed, that the hæmorrhage has been limited to ʒij. to ʒiij. We think we can explain this singular and unexpected phenomenon by the fact that the uterus, as we have many times been convinced, strongly contracts after the excision of the polypus, and that thus the vessels of the pedicle are compressed in a more or less complete manner, which renders hæmorrhage impossible, just as in labor, immediately after the expulsion of the placenta.

At the close of these remarks upon the operations upon polypi of the uterus we may be permitted to add that whenever the

tumor is voluminous and difficult to reach, we have, before proceeding to excision or torsion, always chloroformized the patient, and in these cases this remedy has never failed to afford us effectual service.

For the ligature of polypi at the present time, the apparatus of Levret or Desault is generally employed, composed of the canula, a knot-tightener and a loop. This apparatus is so well known, and the annexed figure (Fig. 46) represents it so well that we may be excused any description of it, especially as we possess in the apparatus of Niessen, modified by Gooch, an instrument much easier to manage, to which, after the two trials which we have made in reference to this subject, we give the preference over those of Desault and Levret. This instrument is composed of two distinct canulas eight inches long, perfectly straight and open at their extremities; a long ligature, made of whip cord, is passed into one of the canulas from below upward, and in the other from above downward, the two extremities of which hang without the inferior openings of the canulas. The canulas are then placed side by side and introduced into the vagina along the polypus by the side of the index finger of one of the hands until their extremities have reached the portion of the polypus where the ligature should be applied. The canulas are then separated from each other, and while one of them is kept fixed, the other is conducted around the polypus until it again reaches the other; after having thus surrounded the pedicle of the tumor with a loop of the ligature—the canulas are then bound together in such a

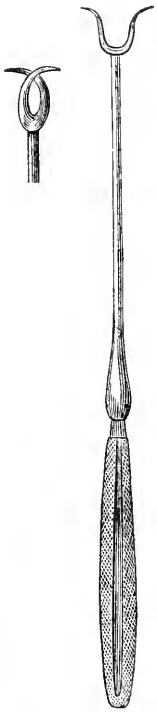

Fig. 45.—Luer's Extractor.

Fig. 46.—Ligature, by Desault's process

manner as to form but a single instrument. (Fig. 47.) For this purpose we need only slide two rings sufficiently large to allow the canulas to pass through them, soldered together by their edges to the superior extremity of the instrument, to fasten them in an immovable manner. At the point of the union of the two rings, a small stick is soldered, uniting with two similar rings which are placed upon the inferior extremities of the canulas in such a manner that the two different pieces separated before the operation form but a single instrument. Then by drawing upon the string which goes out from the inferior extremity of the canulas, and attaching them in a firm manner to a projecting portion attached to the inferior rings, the loop of the ligature around the polypus is tightened, and thus, little by little, it is divided until the tumor is entirely separated at its base.

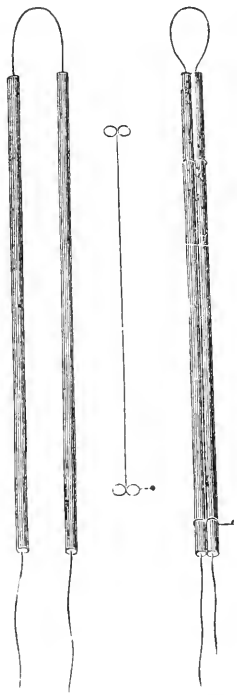

Fig. 47.—Apparatus of Niessen, and the ligature of polypus modified by Gooch.

[A far better instrument is that represented in the adjoining cut (Fig. 48), and, as now perfected, the joint production of Professor Campbell of Charleston, S. C., and Prof. Van Buren of N. Y.; *p* representing the tumor, *t t* are two canulas through which, by means of a hook, *w*, the ligature, is passed. These canulas, thus armed, are passed into the vagina, and by manipulation the ligature is passed around the pedicle of the tumor. When this is properly effected the open end *x* of the instrument *m* is passed over the external extremities of the canulas and passed up to the tumor. The canulas being removed, leave

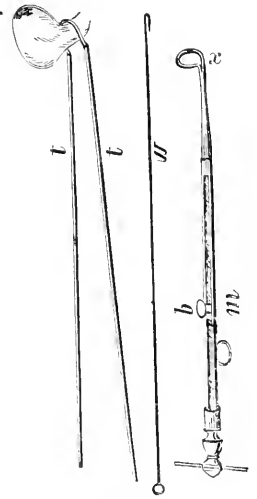

Fig. 48.—Uterine Polypus Ligator.

the ends of the ligature exposed, which are then to be firmly attached to the button *b*, sliding by means of the screw at the extremity, and thus the tension may be made as desired, and by a simple turn of the screw may be tightened at pleasure, until the tumor thus strangulated drops off.]

So long as the instrument remains in place the patient should keep a dorsal or lateral position, and the task of the physician is then to take care to remove, by means of tepid injections repeated many times a day, the secreted matters and the detritus which collects in the cavity of the womb. If the secretion is very abundant, decomposed and fetid, we should employ, for the injections, a solution of the chloride of lime, or we should add to the water a small quantity of finely pulverized linden charcoal.

The time necessary for the complete division of the pedicle varies with its thickness and firmness from two days to three weeks, but it ordinarily takes place in three or four days.

The accidents most commonly observed after the operation with the ligature are inflammations, which are to be treated in the usual manner, or nervous symptoms, and sometimes general convulsions. This latter accident is especially frequent when a portion of the tissue proper is seized within the ligature, and the only means for its arrest is to loosen the ligature as quickly as possible, and either entirely to remove it or to apply it at a point farther distant from the uterine walls.

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§ 2. *Mucous Polypi of the Womb.*

Mucous polypi of the womb are neoplasms which generally have an elongated form, being of the size of a pea or a bean to that of a pigeon's egg, but rarely larger, and owing their origin to a hypertrophy of the elements which compose the mucous membrane. They consist of an epithelial layer, more or less thick, provided with tumescent, club-shaped papillæ, the cells of which are partly cylindrical and partly pavement. Below this epithelial layer we meet with a connective tissue of short fibres, sprinkled with numerous granulations, and, according to the investigations of Billrod, completely destitute of elastic fibres. This last circumstance is also a reason for admitting that these tumors do not originate in the submucous cellular tissue, for this always contains a sinuous connective tissue and elastic fibres. In the interior of the connective tissue of these tumors, we meet with larger or smaller cavities formed by the glands of the mucous membrane dilated by the accumulated secretions, and it is very probable that new glands are formed here entirely complete. These cavities contain a thick, viscous liquid, which sometimes is transparent and colorless, and sometimes yellowish, green or brownish, being seen on attentive examination to be some modification of mucus. The vessels of these tumors are differently situated; according to Billrod, the greatest number are ordinarily found on the surface, where they form a variety of loops and loose net-work.

According as, in the hypertrophy of the entire mucous mem

brane, one of the elements is more or less developed, the consistence, the vascularity of the tumor and the quantity of liquid contained in the cavities also vary, and it is for that reason that ancient authors have described so many varieties of soft polypi of the uterus. Th. Lee, for example, distinguishes polypi in the form of cysts, polypi formed by the dilatation of the ova Nabothii, polypi cellulo-fibrous, cellulo-vascular, mucous and tubular of the neck. As for the transformation of the ova Nabothii into mucous polypi, which is admitted by some authors, the numerous researches which we have made upon this point induce us to unite in the opinion of Billrod. He justly considers that the ova Nabothii never attain any considerable size and almost never show any true pedicle, so that he distinguishes them entirely from other polypi and considers them as simple cysts. The cellulo-fibrous polypi are recognized by a great abundance of connective tissue, a relatively inconsiderable vascularization and a feeble development of the glandular cavities. They are the most consistent and most compact of all the polypi. Ordinarily they are elongated, with a swollen extremity, club shaped, indivisible, while the cellulo-vascular polypi, which is a thin and much infiltrated tissue, possess a great quantity of vessels, and are often divided or terminated by a flocculent tuft. Finally, the polypi in form of cysts are distinguished from mucous polypi, properly so called, because that in the first some mucous glands are transformed into vast cavities, or indeed many are united together to form a common cavity, while for mucous polypi the little dilated follicles are separated by a more or less firm layer of connective tissue.

The mucous polypi of the uterus generally originate in the canal of the neck, and it is only in exceptional cases that they are met with in the body and near the summit of the womb. The mucous membrane on which they are formed presents a lively catarrhal inflammation, which has perhaps given rise to the formation of the neoplasm, but which is also kept up and augmented by its presence.

Mucous polypi may undergo various alterations, among which ulceration and mortification are the most important. Sometimes, also, when the pedicle is relatively small, the tumor

may be completely separated at its base. The contents of the follicles may be transformed into a fatty or colloid mass. We have not observed either the calculous degeneration or the telangiectasic development of the vessels which are admitted by many authors.

The influence of the tumors in question upon the uterus varies according to their situation and size. If the polypus is found in the cavity of the uterus, and if it has attained some considerable volume, it gives rise to the same alterations which we have described in speaking of fibrous polypi, but in a less degree. If, on the contrary, it is situated in the neck, the body of the uterus may remain in the normal state, and the neck alone is more and more dilated by the tumor, the volume of which constantly increases, until it finally escapes from the uterine orifice. The borders of the os tincæ are ordinarily swollen, deprived of their epithelium, and covered with erosions and deep ulcerations.

Symptoms.—The symptoms of mucous polypi of the womb are almost the same as those of fibrous polypi. Here also it is very rare not to encounter more or less severe hæmorrhages, and a more or less abundant leucorrhœal discharge; but the painful contractions which ordinarily accompany fibrous polypi are most frequently wanting with mucous polypi. According to our observations, they are not generally met with except when the tumor is situated in the body or near the summit of the uterus. The violence of the hæmorrhages depends, in the first place, upon the extent of the vascularization of the mucous polypi. This explains why polypi of the size of a bean to that of a filbert often give rise to hæmorrhages much more copious than that caused by tumors as large as a pigeon's egg or larger, when the latter contain a few sanguineous vessels. The losses of blood present at first a certain periodical type like that of menstruation; but subsequently they return at irregular periods, and are often occasioned by external causes, as the rubbing of the surface of the polypus by walking, or by sitting, or by coition, etc., especially when the polypus passes outside the external orifice. In the examination of such a tumor, this vulnerability and this tendency to hæmorrhage after coition, may aid in distinguishing it from a fibrous tumor, the surface

of which is ordinarily, if not always, much less vulnerable. In the intervals between the hæmorrhages, a more abundant flow of the mucosity secreted by the mucous membrane of the neck is observed, which sometimes presents, during the whole duration of the disease, a light sanguineous tint, due in part to a continual detachment of the epithelial envelope of the polypus, and in part to the presence of erosions and deep ulcerations, which bleed easily around the circumference of the uterine orifice.

When the disease has continued some time, the repeated hæmorrhages exert an injurious influence upon the general health of the patients, and it is rare for a mucous polypus to attain any very considerable size without being accompanied by anæmic or hysteric symptoms more or less marked.

Diagnosis.—The more difficult it is to recognize with certainty a polypus of small size, capable of being neither seen nor touched, situated in the body, or near the summit of the uterus, the easier is the diagnosis when the tumor has escaped from the orifice of the womb. The exploring finger then meets with a spherical or elongated tumor shaped like a club or a bell, extremely soft and sometimes permitting itself to be crushed by the least pressure. It juts out of the os tincæ more or less, and is ordinarily inserted into the mucous membrane of the neck upon some point accessible to the touch. This insertion is important as aiding us to distinguish mucous polypi from fibrous polypi, which, as we have seen above, originate very rarely in the neck of the uterus. If we expose the os tincæ by means of a speculum, the polypus which projects from it is easily recognized, being distinguished from the much paler mucous membrane of the neck by its color, which is ordinarily bluish red. A somewhat long whalebone sound, introduced into the cervical canal and passed around the tumor, will almost always discover its insertion.

If all these facts, important for the diagnosis, are attended to, we cannot easily confound a mucous polypus with any other tumor of the uterus. There cannot be any difficulty except when the mucous polypus has originated in a more elevated part of the body of the uterus, and when it has attained a considerable size and consistence. In such a case, we cannot often

recognize the fibrous or mucous character of the polypus, until we examine the tumor attentively after its extraction. Furthermore, the certainty of the diagnosis in not here of great importance; for the symptoms, the prognosis, and the treatment are the same in the two cases.

Treatment.—It is surely not difficult to comprehend that there is but one infallible means for removing the pains and the danger attendant on the presence of a mucous polypus, and this means is the extirpation of the tumor. It is true that many authors have proposed repeated cauterizations of the tumor by means of the lapis infernalis, mineral acids, etc., but this method has not found many adherents, because it is protracted, tiresome, and much less sure than excision or torsion.

If the pedicle is small, we prefer torsion to all other methods, by reason of the consistence, ordinarily soft and friable, of the tumor. Two fingers introduced into the vagina serve as conductors for the strong polypus-tenaculi or the little ratchet forceps with which the tumor is seized. Two or three rotations of the instrument upon its axis ordinarily suffice to break off the pedicle. When the tumor is very soft and contains cavities filled with a great quantity of liquid, it often happens that it is crushed in trying to perform torsion, and it is necessary to remove it piecemeal. For in a very small tumor, the breaking ordinarily suffices of itself, and thus a complete cure is obtained, especially if we repeatedly touch the point of insertion with a crayon of nitrate of silver, concentrated sulphuric acid or some other caustic.

We advise the excision of the tumor when a polypus, accessible to the touch, and having a large pedicle, is inserted in the neck of the uterus. The best method is to seize the polypus between two fingers, along which are introduced a long pair of polypus scissors bent upon the flat surface. If the polypus is implanted higher in the cavity of the uterus, and the insertion cannot be reached, we should attempt to draw the tumor down as low as possible by seizing it with two fingers, with a hooked Museaux forceps, or with a ratchet forceps. The tumor may then be abandoned to an assistant, and we should remove it by means of curved scissors, as in the preceding case. In cases when this method should not be practicable, there only remains the liga-

ture for the extirpation of the polypus. We have, however, extirpated ten mucous polypi without having been obliged to have recourse to this procedure. As to the manner of applying the ligature, as well as for the subsequent treatment of cases treated by torsion or by excision, we refer to what we have said upon this subject in the treatment of fibrous polypi

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§ 3.—*Fibrinous or Sanguineous Polypi of the Womb.*

Kiwisch, in his clinical lectures, speaks of an affection of the uterus to which he gives the name of **fibrinous** or **sanguineous polypi.** Their formation and anatomical characteristics he describes as follows: "The sanguineous polypus is the result of an apoplexy of the uterus, into the cavity of which the blood is effused, after which it coagulates and undergoes the metamorphoses which are ordinarily observed in the interior of the body, when blood remains in contact with a living surface. By degrees the coloring and liquid portions are reabsorbed, and a body is left behind which is composed of a whitish, or dirty grey, fibrinous envelope, ordinarily containing a reddish clot of blood. It is needless to say that the apoplectic effusion cannot be considerable when the uterus is contracted; but it is remarkable that, in particular circumstances, unknown to us, this effusion may last some considerable time and occasion a dilatation and a softening of the entire uterus and particularly of the less resisting cervical canal, to such an extent that the sanguineous clot and the cavity which contains it attains a considerable size. From the configuration of the organ in which they are found, these clots take the form of polypi. The neck, the most yielding portion, offers a spherical dilatation, while the body, much more compact, resists the dilatation. Hence, the lower portion of the clot is much stronger than the superior, which soon forms a round, elongated pedicle, composed of whitish fibrin, and more or less intimately adherent to the

walls of the uterus, while the body of the polypus is ordinarily formed of a bloody clot, soft and reddish, and furnished on its surface with a thin fibrous envelope. In consequence of these polypi a more or less abundant metrorrhagia is always observed, accompanied by contractions and very intense pains, and invariably preceded by a complete cessation of menstruation during from six to twelve weeks. During the metrorrhagia the entire uterus, and more particularly the neck, is distended, the orifice is more or less dilated, and there is sometimes seen hanging in the vagina a spherical body, smooth and easily compressed, which is nothing but the polypus itself. If the uterus is then thrown into violent contractions, the tumor is spontaneously expelled; at other times the expulsion is long delayed, and dangerous hæmorrhages may result."

Kiwisch considers that fibrinous polypi are the result of an apoplexy of the uterine cavity in which the effused blood coagulates and afterward undergoes various metamorphoses. If, however, he expressly excludes from the causes of the hæmorrhage all dilatation of the cavity of the womb in consequence of conception, as well as every previous pathological alteration of the organ, we are forced to recognize that he ascribes the presence of the clot in question to the retention of the menstrual blood thrown out within the uterus.

To deny the possibility of the formation of a **little clot** in a healthy and non-dilated uterus, in consequence of a retention of the menstrual blood, would be to refute every day's observation. In fact, we have but too often the opportunity of meeting with similar clots within the uterus, in making the autopsy of women dying during menstruation. As we are perfectly convinced that the menstrual blood can coagulate we must admit that under this aspect, Kiwisch does not imagine an impossible thing when he admits that the retention in the uterine cavity of such a clot formed by the menstrual blood is the first cause of the development of tumors, which he has described under the name of fibrinous polypi.

An exact comparison of the alterations which the clots of menstrual blood undergo in the uterus, with the anatomical characteristics which Kiwisch claims for the tumors in question; an appreciation of the aggregate of the symptoms which we have

given above; a reiterated observation of the entirely analogous case, in which careful examination has demonstrated a morbid product differing little from the descriptions of Kiwisch, but owing its development to an entirely different cause; finally, the fact that the changes which are observed in the shape of the uterus ought to be just the reverse of those which are observed in this organ in the course of other tumors—all these reasons have entirely convinced us that the simple coagulation of the menstrual blood cannot give rise to a morbid product occasioning the symptoms described by Kiwisch. In a word, we think that in the description of the polypus in question he has fallen into an error as to the etiology of this neoplasm.

And in the first place, as to the properties of the blood effused into the womb, we cannot omit to state that up to the present we have never observed in a single case any quantity of blood, however inconsiderable, in a uterus otherwise healthy, in an individual still young, where fecundation was still possible. In the most marked cases we have met with nothing but a sanguineous layer, slightly adhering to the mucous surface, and a clot from one line to six lines in thickness situated parallel to the longitudinal axis of the uterine cavity, the triangular form of which it had taken. Often even it descended through the internal orifice more or less low into the cavity of the neck. But the longer the time which had elapsed since the last menstruation, the less distinct were these characteristics. Indeed we have never met with a single healthy uterus in which, fifteen days after the last menstruation, a trace of the sanguineous flow which had taken place could be demonstrated. We ought, in consequence, to lay it down as a general rule, allowing but very rare exceptions, that the blood effused into the womb in a healthy state always disappears previously to the next catamenial period, so that the clot formed during the first period can never augment in size during the second.

If it be objected that these are rare exceptions to the rule regarding the origin of the polypi in question, we reply that this objection falls of itself so soon as the texture of these tumors themselves are examined with some attention. It is surprising that Kiwisch should affirm on the one hand that these clots form in consequence of slow and gradual effusion into

the cavity of the uterus, while, on the other hand, he says that these polypi are formed of a fibrinous envelope, and of an interior soft, reddish clot. These two statements are an evident contradiction. In fact, throughout the organism, where we meet with bloody clots, formed by effusions repeated at longer or shorter intervals, but always in small quantities, we invariably find in the oldest portion, in the middle of the clot, the most considerable changes. It is there that, in the most evident manner, we recognize the reabsorption of the liquid and coloring matters, the coagulation of the fibrin, and its transformation into connective tissue, while the organization of the effused mass is always less advanced according as we approach the more recent layers. But as the structure of the fibrinous polypi is so rarely opposite to what we have just indicated, that the organization of the centre is much less advanced than that of the exterior layers, we are authorized to infer that the clot which gives rise to the tumor is not gradually formed, little by little, but that it is the result of a single effusion, relatively abundant.

But in order that some considerable quantity of blood may be collected in the uterus, it is indispensable, seeing the small space which exists, in the normal state, between the walls of this organ, that the effusion should be accompanied by an extraordinary dilalation of the cavity of the womb. It seems to us impossible that the firm and resisting walls of a perfectly healthy uterus can, by the simple retention of blood effused into its cavity, effect a dilatation sufficient to permit the formation of a clot of the size of a chicken's, or even, of a goose's egg, and this especially as the blood can flow out of the cervical canal. But, while admitting that this may be possible, we cannot however exactly comprehend why in this case the mechanism of the dilatation of the organ should be directly opposite to that which we constantly observe in the course of a gestation, from the retention of other liquids, or from the presence of voluminous fibroids projecting into the uterus, etc. In fact, while in all these cases it is the body and the summit of the uterus which first present a dilatation, and this dilatation is not till afterward communicated to the neck, the contrary should take place with the fibrinous polypi which do

not present the form of polypi but by reason of the spherical dilatation of the neck, the most yielding part of the organ, while the more compact body offers greater resistance to the extension.

Finally, Kiwisch has still explained why, in the case of the fibrinous polypi which he has described, the flow of the blood secreted by the internal surface of the uterus has been constantly arrested during six to twelve weeks. As he himself adds that all the women in whom he has met it were given to coition, it is surprising, that he does not regard this circumstance, with the amenorrhœa of six or eight weeks, and all the other accompanying symptoms, as in fact demonstrating in a manner more than probable, that there has been conception and premature expulsion of the ovum. He adds, it is true, that we may easily confound a fibrinous polypus with an abortion, for here it also happens that the remains of the membranes infiltrated with blood, after the expulsion of the embryo, project into the os tincæ and may thus resemble a polypus; but he nevertheless wishes that we should carefully distinguish abortions from the polypi in question; for in the one case it is the body, and in the other the neck of the uterus which offers the greatest dilatation. Furthermore, the structure of the expelled body will give all the necessary information upon the nature of the disease.

While we would in no manner wish to reproach Kiwisch with having, in a too superficial examination of the expelled body, mistaken the presence of some fragments of the ovum, we cannot, however, help thinking that in the cases observed by this physician, the abortion took place at a period when the patients had not yet placed themselves under his charge. Many of the observations which we have made have led us to see that such a mistake is the more easy, as the true state of things is often designedly concealed from the physician, or else it is not communicated to him, because that the little embryo with its appendages is often so enveloped by the sanguineous clots which are expelled with it, that neither the patient nor those around have paid attention to it.

If, then, the external orifice is closed, as is often seen after abortions happening during the first four months of pregnancy, it may easily happen if the hæmorrhage continues, or if it

appears again a little later, that the effused blood collects in the uterus, that it descends into the cervical canal still dilated in consequence of the abortion. Little by little the body of the uterus contracts with more force, and this so much the easier, as the blood-clot opposes scarcely any resistance to its contractions, and the result is, that the upper portion of the clot is compressed and contracted, while the lower portion, situated on the less contractile neck, presents a more rounded and globular form. In this manner the clot may remain sufficiently long in the cavity of the womb, without occasioning any disturbing symptom. In one of our cases four months elapsed, in another seven, between the abortion and the expulsion of the clot inclosed in the uterus. In these two cases, as well as in five others present in our memory, slight hæmorrhages were repeated at irregular intervals, during the time that the clot was retained in the uterus, while in four others a complete suppression of menstruation was observed (in two cases for three months and in the other two during two months); in still another, the expulsion of the polypus took place fifteen days after the abortion. In all these cases we have, ourselves, been witness of the abortion, or the accounts given by the patients were so exact that the correctness of their statement could not be doubted.

The symptoms which accompanied the expulsion of the clot were exactly the same as those described by Kiwisch (*loc. cit.*) The anatomical examination of the bodies expelled, whether by the efforts of nature or with the assistance of art, demonstrates a nucleus formed by a blood-clot more or less soft, and of a deep red, surrounded by a periphical layer more compact, of a yellowish grey, or of a reddish yellow, in which fibrin was recognized by the microscope, part of which was not yet organized while part was already transformed into connective tissue. The upper extremity, which was thin and composed almost entirely of cellular tissue, was always strongly attached to the internal surface of the womb, and the more intimately in proportion as the time which had elapsed between the abortion and the expulsion of the polypus had been longer.

We are not, as yet, able to give a satisfactory explanation of the formation of these adhesions between the polypus and the

internal surface of the womb. Still, the opinion of Kilian, according to whom the clot implants itself upon the uterus, appears to us more probable, judging by the texture of the polypus itself, than to admit a development on the part of the uterus, so much the more as the absence of the mucous membrane upon the internal surface of the womb, resulting from the abortion, especially favors the first of these modes of formation. In one of the cases which we have observed, where death ensued in consequence of puerperal fever, we found, with Virchow, the polypus adhering to the place of insertion of the placenta. Virchow,* indeed, regards it as perfectly natural that the insertion of the clot should take place exactly upon the location of the placenta, while it is much more difficult to imagine such an adhesion upon a smooth surface like that of the rest of the uterus.

After what has been said, the frequency of an etiological connection between the abortion and the polypus in question cannot be doubted, and while we would not pretend that the first is a condition *sine quâ non* of the development of the second, we think that it is one of the most important causes. In every case we think we can affirm that an indispensable condition for the formation of a polypus is the previous dilatation of the uterine cavity, either from parturition at full time or after an abortion, or at least after some pathological alteration of the walls of the womb. In fact, we do not know a single case, either in the observations of others or in our own individual experience, which can allow the admission with certainty, of the possibility of the development of such a polypus in a perfectly normal uterine cavity, undilated, and the walls of which show no alteration.

As we know by experience that the losses of blood, which are sometimes considerable and dangerous, ordinarily cease after the expulsion of coagulated blood, because the presence even of a clot prevents the contractions necessary to arrest the hæmorrhage, the first task of the physician is to provoke the natural or artificial expulsion of the clot protruding from the os tincæ. But, as before the complete expulsion of these bodies it is not possible to distinguish in a certain manner

* Würzburger Verhandl. Vol. ii., p. 219.

whether it is not a case of abortion already commenced, and as, when this is the case, the prompt extraction of the ovum will be immediately indicated, it is unnecessary to say that the treatment which the physician ought to order will be almost the same as for an abortion which cannot be arrested. We refer for more ample details upon this subject to the manuals and treatises on obstetrics, and will content ourselves with indicating briefly that it will be necessary to employ means adapted to increase the uterine contractions, as ergot of rye, cold compresses upon the abdomen, the tamponing of the vagina, and the application of suction glasses upon the breasts.* if the dilatation of the orifice is sufficient to allow the introduction of a finger into the uterus, the surest and promptest method of arresting the hæmorrhage will be the manual extraction of the polypus. But if the hæmorrhage continues after the extraction of the blood-clot, it will be necessary to resort to injections of cold water or of astringent liquids.

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§ 4. *Tuberculosis of the Womb.*

The uterus is one of the organs which are but rarely affected by tuberculous degeneration. The memoirs of the Institute of Pathological Anatomy at Prague, published by Dittrich, according to which, in forty autopsies of women affected with tubercules, in but a single one was tuberculosis of the womb, sufficiently confirms this opinion. If the fact is recognized that tubercles are never found exclusively in the uterus, but are always accompanied by analogous alterations in other important organs, as for example, in the lungs, in the intestinal mucous membrane, the peritoneum, etc., it will be easily comprehended that this disease has no great practical importance. In fact, the symptoms which result from it are often so concealed by those occasioned by the presence of tubercles in other organs,

* A sort of cupping glasses applied by M. Scanzoni upon the breasts in order to produce premature accouchement.—*See his Manuel d'Accouchements.*

that the affection of the uterus is often not recognized till the necropsy.

Among all the tissues of which the uterus is composed, it is always the mucous membrane of the body or of the summit of the organ at which the disease commences. Sometimes a few granulations, isolated or collected in groups, are met with; sometimes the mucous membrane and the adjacent muscular layer are completely infiltrated with tuberculous material, which sometimes extends for one-fifth to two-fifths of an inch. As we have already said, the location of the tubercles is ordinarily in the body or toward the summit of the womb, and they are distinctly limited in the neighborhood of the internal orifice. When they descend to the neck, which happens only when the disease is much advanced, it is rare to observe anything but isolated granulations, few in number, and having their seat solely in the mucous membrane; at least we have not seen a single case where we have found the tuberculous infiltration penetrating more deeply into the tissues of the neck. Still some authors say they have observed it.

The transformations which tubercles undergo in other organs are not rare in the body of the uterus. The mucous membrane often suppurates; it is softened, decomposed, and the elements of the tissues in dissolution mingle with the secretion which flows from the uterine cavity. The granulations of the exterior surface of the neck often give rise to little superficial ulcerations of the size of the head of a pin to that of a lentil. In one case we have seen them joined together and forming upon the anterior border of the os tincæ a tuberculous ulcer of little depth and about four-fifths of an inch in diameter. When the tuberculosis of the womb is far advanced, the layer of uterine tissue nearest to the affected parts always presents a hyperæmia and a hypertrophy more or less marked: in short, all the symptoms of chronic engorgement.

The tuberculosis of the Fallopian tubes almost always accompanies that of the womb, and usually the affection is more advanced in the oviduct canals, which are dilated, and whose cavity often contains a considerable quantity of cheesy and tuberculous pus. Tuberculosis of the ovaries is certainly one of the rarest complications. We have only observed it once,

in a woman recently delivered, who died from a tuberculous peritonitis. It is also very rare at the autopsy to find tubercles in the vagina, the urethra, or the bladder.

We have already said that, during life tuberculosis of the uterus is generally overlooked, because of the much more important symptoms which result from its attacking other organs. But if the sexual organs of a woman affected with tuberculosis are carefully examined, we can often with some certainty make a diagnosis of the disease of the womb. For this it is necessary especially to remember that the tuberculization of the uterus presents at the commencement the symptoms of a more or less chronic metritis, and that the women who are affected with it complain of a painful sensation in the pelvis, of a frequent necessity for urinating, defecation being difficult, and leucorrhœa often abundant. Finally, in a more advanced period of the disease, in consequence of an alteration in the vessels of the uterus, menorrhagia or metrorrhagia are often observed in place of the dysmenorrhœa or the complete amenorrhœa which previously existed. We can aid the diagnosis by examining with the speculum the vaginal portion, upon the exterior of which we may recognize solitary granulations of a greyish white, with tuberculous ulcers, which we have previously described. The microscopic examination of the secretion which flows from the uterus into the speculum is always much more important.

When we have certainly recognized the presence of tubercles in the uterus, it is always requisite to make a very unfavorable prognosis, because this disease always leads us to infer an advanced tuberculization in other organs, which will invariably terminate fatally. The assistance which the physician can render will here be very limited; he ought to be content, in fact, with moderating, by narcotic remedies, the sometimes very intense pains, with preventing the corrosion of the vagina and the external genital parts by removing the matters secreted which may be retained there, and with arresting hæmorrhages if they occur.

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§ 5. *Cancroids of the Womb—Cauliflower Excrescence of the Uterine Orifice.*

John Clarke, in 1809, first described a peculiar degeneration of the uterus, to which, on account of its form, he gave the name of cauliflower excrescence of the uterine orifice. According to his description, the cauliflower is an irregular excrescence, with a granulated surface, fixed by a large base in the tissue of the uterus in the neighborhood of the os tincæ. It may be touched, and even forcibly pressed, without occasioning sensible pain. At this epoch, the other parts of the uterus present no notable alteration, but gradually the malady spreads around the circumference of the os tincæ and upon the exterior parts of the neck, and, finally, the orifice and the entire neck undergo the same degeneration.

Other English physicians, among them we should cite C. N. Clarke, Ramsbotham, Lever, Montgomery, Anderson, Simpson, Hœber, T. St. Lee, etc., have collected many observations on this malady. The peculiarities of these tumors are, according to the descriptions given, that they have the form of cauliflowers, that they have a very abundant aqueous secretion, that they often cause the death of the patients who are affected by them (if not by the great development, at least by exhaustion of the system), that they do not generally extend beyond the lips of the os uteri, although they have been observed in the interior of the uterus and on the walls of the vagina; and, finally, that they do not reappear after having been once completely extirpated.

For a long time there were doubts respecting the true nature of these tumors, and it was not known whether or not they were to be ranked among the cancerous diseases of the uterus. It was Virchow who first had the merit of recognizing the peculiar structure and the true nature of these excrescences, and now there is no longer doubt that we should rank the cauli flowers in the category of **papillary tumors**. According to this celebrated professor, the excrescence is at first a simple papillary tumor, which afterward passes into a cancroid state.

At first nothing is seen but papillæ or villosities, composed of very thick layers of peripheral plates, under which the cylindrical epithelial cells are to be recognized, surrounding a very fine cylinder composed of fully developed vessels, with a few fibres of connecting tissue. In the exterior layers, all the different forms of development of cells are met with, even to the parent cells inclosing numerous nucleoli. The vessels are ordinarily large capillaries, which sometimes form a single loop near the summit of the papillæ, between the layers of epithelium, while at other times the number of loops augment, according as we approach the surface, where sometimes the vessels form a closely interwoven net-work. Their considerable size, the thinness of their walls, their development on the exterior of the papillæ, explain the abundance of the aqueous secretion, and the hæmorrhages, sometimes very violent, which characterize the cauliflower excrescences. The papillæ are at first single, very close to one another, and give to the surface the granular appearance already described by Clarke. The papillæ afterward ramify, and the ramifications often form real fringes of several lines in length. The tumor then resembles those masses of small hydatids, which have been comprehended under the name of **mole.** That is the true cauliflower. At the end of a certain time, we may see developed in the deep layers of the tumor between the muscular fibres and the connective tissue, the alveoli of the cancroid. Virchow at first only observed cavities filled with simple epithelial cells, but afterward he found real alveoli, upon the walls of which were developed new papillary excrescences ramifying in their turn; a sort of prolific arborescence.

Of all the German physicians, Ch. Mayer, of Berlin, has collected the greatest number of observations upon the progress of this disease. We will take the liberty to quote his words as we find them in the fourth volume of the *Memoirs of the Obstetrical Society of Berlin.* He thus expresses himself: The cauliflowers of the uterus first described by John Clarke are not one of the ordinary forms of cancer, but a peculiar excrescence of the female sexual organs. It presents some analogy to cancer of the lip, so much so, that like it it is at first purely local, nowise constitutional, but later it assumes a cancerous character,

infiltrating gradually the healthy parts of the affected organ, and at last completely destroying it, producing death from profuse hæmorrhages and suppuration. The absence of observations and exact examinations of these tumors is partly accounted for by their rarity, and partly by the fact that, either by the fault of the physician or by that of the patients, the disease is not often observed until the infiltration and the decomposition are already very much advanced, and it is no longer possible, either by the touch or by means of the microscope, to distinguish it from a cancerous ulcer covered with fungosities. After death the tumor diminishes very much in volume; it shrivels and easily escapes anatomical examination. Mayer thinks that it is more probable that we rarely meet in hospital practice with the earlier stages of the disease, and that it is still more rare that an autopsy in these cases is made, and that they thus come into the hands of the anatomist. The cancroids of the uterus ordinarily first develop themselves upon the lips of the os tincæ, and from thence they spread to other parts of the neck and of the body of the uterus. They are met with in the young and old, rich and poor, in the single as well as in the married, in those who have had many children as in those who have had none, or who are even in the virgin state. The causes of the disease are as yet unknown.

This same degeneration is also found in the vagina, but much more rarely than in the uterus—from analogy we must call it cancroid of the vagina. It is probable that it may be developed upon any point of the vagina. Mayer has observed it twice upon the posterior wall of this organ, and we have ourselves met with it twice in the same place. The cancroid of the womb and of the vagina forms, in the first period of its development which is an important period for the diagnosis and treatment, a rounded tumor, soft, shiny, reddish, bleeding at the least touch. Its surface, finely divided, resembles the brains of small animals, or, according to Clarke, cauliflowers. In the vagina, when seen through the speculum, it shows a very lively red color, which Simpson compares to that of a very ripe strawberry. After excision the color is paler. It appears without precursory symptoms and is characterized by a discharge which is aqueous, serous, sanguinolent, reddish, very

abundant, sometimes fetid. From time to time this discharge is replaced by a profuse mucous secretion, or by considerable effusions of blood. During this period it is not accompanied by pains, which are observed in the course of true carcinoma of the womb.

The cancroid of the uterus, in the first period, or so long as the infiltration and the excrescences have not attacked the body of the womb or the vagina, can be cured by the excision of the diseased part. We may expect a fortunate result from the operation, when a large part of the neck is still smooth, compact and healthy, when after the excision the womb presents neither excrescences nor other pathological alterations, and when the extirpated tumor incloses neither cells nor the cancerous moisture. The cancroid of the vagina in the two cases of Mayer, and the two which we have ourselves observed, had a very rapid progress and a fatal termination. We must wait for new facts to know if we can cure them, but that, probably, will not be possible except when the tumor is still small and well defined, and when the walls of the vagina are, furthermore, entirely healthy.

The most efficacious method for the operation upon cancroids is by excision. It can be done as well and as surely in the vagina by means of bent scissors, with rounded points, or rather with Siebold's S-shaped polypus scissors, the patient being laid upon the back. Simpson recommends the operation by means of the bistoury, after having with hooks drawn the tumor outside the external genital parts, the patient lying upon the abdomen. Mayer prefers the first method; he considers the position upon the abdomen as inconvenient for the patient and useless for the operator. He completely rejects the ligature recommended by J. Clarke.

The hæmorrhages, sometimes abundant, which often come on after the operation, may be arrested by means of injections of cold water or vinegar, or by introducing a large tampon of lint into the vagina.

When the surface of the wound is not healthy and traces of infiltration or excrescences are observed within it, it is necessary, if the hæmorrhage permits, to endeavor to destroy them immediately after the operation, or at a later period, with a

crayon of nitrate of silver, a solution of the acid nitrate of mercury, or the actual cautery. In such a case we may expect a return of the disease, and it will probably be incurable.

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§ 6.—*Cancer of the Womb.*

Of the different forms of cancer admitted by anatomists, scirrhous and encephaloid forms are those which most commonly affect the uterus. Ordinarily the disease presents itself in the form of a cancerous infiltration; at least in the primary affections of the womb we shall hardly meet with cancerous nuclei clearly defined and as it were inglobed in the tissue of the uterus. On the contrary, the secondary deposits which often accompany the cancerous affection of other organs ordinarily present this latter form, and are known under the name of sub-peritoneal cancers. Among all the parts of the uterus it is almost exclusively the vaginal portion which is the starting point of this disease; in fact, although observations exist of cancers which are developed in the body, or near the summit of the uterus, while the neck was entirely untouched, or else where the infiltration was equally spread throughout the organ, such cases ought to be considered as rare exceptions. The alteration of tissue progresses more or less rapidly from the os tincæ toward the internal orifice. Sometimes, but very rarely, it stops here; but it most frequently spreads itself over the inferior portion of the body of the uterus, which undergoes the cancerous degeneration to such an extent that finally nothing of the organ remains but a fragment more or less considerable of the summit. The softening, the ulceration and decomposition of the parts infiltrated with cancerous material ordinarily progresses from within outward, in such a manner that the exterior layers are sometimes still only infiltrated when the inferior

layers have been for a long time transformed into a sanious detritus.

The intimate relations of the uterus with the neighboring organs easily explain why the disease, so soon as it has attained the internal orifice, easily communicates to the bladder, the rectum, the peri-uterine cellular tissue, and subsequently to the ovaries, the Fallopian tubes, to the muscles and the aponeuroses covering the interior wall of the pelvis, and sometimes even to the bones of the pelvis. The extension of cancer of the uterus to the bladder and rectum is of a high practical importance, for the decomposition of tissues, and the destruction of the walls, which, in a longer or shorter time, always result from it, give rise to vesico- and recto-vaginal fistulas, which greatly torment the patients.

The principal complications of cancer of the uterus are the cancerous degeneration of the inferior portion of the urethra, the clitoris, the labia, and the inguinal glands; it is more rare to meet with an analogous affection in the walls of the stomach, the pleura, the lungs, the liver, and the kidneys. On the contrary, we find very often a catarrhal or dysenteric affection of the intestinal mucous membrane, or the obliteration by a blood-clot of the veins of the pelvis and thighs, with purulent decomposition of the thrombus and metastatic deposits in distant organs, as for example, in the subcutaneous cellular tissue, the lungs, the heart, the pericardium, and the meninges of the brain. One of the most frequent complications is the collection of serum in the abdominal cavity. This ordinarily results from a simple chronic peritonitis, or perhaps from a septic inflammation.

The parts of the uterus which do not present cancerous infiltration are either healthy and in the normal state, or hypertrophied, hyperæmic and engorged. It is not rare to find with cancer of the womb cysts of the ovary, or fibrous tumors, sometimes spherical, sometimes pediculated; but these complications are entirely accidental.

We have only once observed a spontaneous cure of the disease which now engages us. It was in a woman sixty-eight years of age, with whom the decomposition and destruction of the neck were limited to the internal orifice, where, as Roki-

tansky also once noted, a cicatrix remains in the form of a funnel. This happened under our eyes; after that, the woman lived a year and a half, and died in consequence of a cancer of the right breast. The falling off of the infiltrated portion in consequence of gangrene or fatty degeneration, has been considered as a sort of spontaneous cure; still we do not know any case where, after such a termination, the life of the patient has been perceptibly prolonged.

As to the **varieties** of uterine carcinoma mentioned above, the **encephaloid** (medullary carcinoma) is certainly the most frequent. It is characterized by its abundance of sanguineous vessels, by a remarkable tendency to rapid decomposition, and by its irregular bosselated surface, which is often as if torn or covered with fungosities. Decomposition, as we have already said, most often in the first place attacks the interior layers of the neck, and so gives rise to an ulceration of a funnel shape, the point of which is directed toward the internal uterine orifice, the irregular and ragged borders of which present an uneven surface, covered with more or less developed fungosities or with numerous granulations, very vascular, from the size of a millet seed to that of a pea. The surface of the ulceration is covered with a more or less thick layer of sanies, which is ordinarily very liquid, discolored and extremely fetid. The medullary carcinoma has a great tendency to communicate itself to the neighboring organs, particularly to the bladder, vagina, and rectum, and perforations of the abdominal walls not unfrequently result therefrom, which are ordinarily followed by fatal peritonitis.

The **scirrhus** (fibrous carcinoma) has a much more abundant vascularization than the medullary carcinoma; it has less tendency to soften and decompose, and it does not communicate itself in general to the adjacent organs until after the lapse of a sufficiently long time for it to have been transformed, at least in part, into the medullary carcinoma.

The texture of cancer of the womb does not differ from that of cancer of other organs; we think we may therefore suppress the description of the composition of this neoplasm of the uterus, referring for it to the appropriate chapters of manuals of pathological anatomy.

Etiology.—The causes of cancer of the womb are quite as little known as those of cancerous affections of other organs. In fact, even when experience has demonstrated that cancer of the womb is more frequent at a certain age, in certain circumstances, we are yet completely ignorant of the mode of influence which the so-called predisposing causes have upon this disease, and in a great number of cases it is perfectly impossible to discover any cause whatsoever.

Although in general it is true that the majority of patients are between forty and fifty years of age, still it is not rare to meet with uterine cancer in women who are much younger or much older. In the course of eight years we have treated one hundred and eight patients affected with cancer of the uterus. Among them

4	were	between	20	and	25 years.
4	"	25	"	30	"
17	"	30	"	35	"
18	"	35	"	40	"
45	"	40	"	45	"
15	"	45	"	50	"
4	"	50	"	55	"
1	"	55	"	60	"

The youngest of these patients was twenty-three years old, the oldest was fifty-nine. Mme. Boivin and Dugès, Kiwisch and Chiari have arrived at like results, and as Kiwisch observed with reason, the differences of the statements of Mme. Boivin and Dugès are explainable, because these authors have confounded with carcinoma of the uterus different diseases, which ought to be separated from them. We may assuredly be permitted to exercise such judgment, when we read in their works that they have met with twelve cancers of the uterus in women under twenty years of age, a statement which is not confirmed by any recent writer.

As to the relation which exists between the sexual functions of woman and the malady which we are now considering, it is astonishing that out of our hundred and eight patients thirty-six were sterile women. If we further consider that the patients who have never been confined are relatively fre-

quently affected with neoplasms of the sexual organs (of the womb, the ovaries, and the breasts), it is nowise absurd to consider that up to a certain point sterility is a predisposing cause of the disease in question.

On the other hand, very frequent accouchements also appear, perhaps from injuries of the lower segment of the uterus, to have some influence upon the development of cancer. At least, our experience speaks in favor of this opinion. Of our hundred and eight patients, seventy-two had had several labors. In fact:

6	were delivered	11	times.
3	"	10	"
2	"	9	"
14	"	8	"
13	"	7	"
21	"	6	"
10	"	5	"
3	"	4	"

The notes which we took regarding our patients are not sufficient to permit us to indicate in a certain manner how many times the labor was difficult and how many times it was necessary to have recourse to an operation. We cannot in consequence decide up to what point dystocia and the lesions which may result therefrom have an influence upon the disease of the uterus, which is afterward developed. As to the constitution of our patients, it is not possible for us to pronounce in a precise manner; still we think we can affirm that the majority had a sanguine or choleric temperament, a darkly pigmented skin, and dark hair. In general they had not had any constitutional disease before the appearance of cancer of the womb, so that the opinion formerly very extensively prevalent, that scrofula, syphilis, etc., predisposed to this disease, appears little plausible.

The manner of living has also an influence upon the development of the disease. Ninety-one of these patients were married, seventeen were maidens, seventy-eight lived in large cities, thirty in the country. We conclude therefrom that residence in cities favors the development of the disease; and

if it is objected that until now we have practised medicine only in large cities, we answer that a large number of the patients that we have treated we found in hospitals where they received city and country patients without distinction; and further, we should add, that in our audience hours we are frequently consulted by women from the country. We think then we can judge of the relative frequency of certain diseases in the city and in the country. Finally, the information we have received from physicians practising exclusively in the country, has confirmed our opinion that cancer of the womb is much more rare than in large cities.

But the most important causes are assuredly emotions of grief, fretfulness, the cares of life, affliction after some bereavement, etc. We are truly astonished that the different authors have attached so little importance to these circumstances. We have been able to convince ourselves that eighty-four of our patients have for a long time undergone the pernicious influence of such causes, and almost always the first symptoms of the disease appeared a little after the fatal emotion.

We are further persuaded that immoderate coitus and excessive sexual excitation are not without importance in the etiology of cancer. In fact, we have been able, in fifteen of our patients, to recognize an insatiable desire, sometimes from the avowal of the patients themselves, sometimes from the complaints of their husbands, who accused their wives of having tormented them when the disease had already made considerable progress. The rarity of carcinoma of the uterus among public women (three only of our patients had formerly belonged to this class) does not appear to be in contradiction to what we have affirmed, for in general they are not in coitus affected with the same intensity as a woman who yields herself to a husband she loves. It is not the frequency of the coitus, but the moral excitation which accompanies it, which seems here to be the important point.

In fifty-four of our hundred and eight patients, some anomaly of menstruation had existed with a leucorrhœa for a longer or shorter period before the appearance of the characteristic symptoms of cancer. In eight others the disease declared itself with the symptoms of acute metritis, and in eighteen others we met with a primary disease of the uterus, which we

could only take for a chronic engorgement, sometimes with, sometimes without, ulcerations of the os tincæ. By degrees, and often in a very short time, other symptoms appeared, which did not permit a doubt as to the presence of cancer. In the present condition of our science, it is impossible to decide whether or not the infiltration of the walls of the uterus caused by a chronic engorgement can undergo a cancerous degeneration; therefore we do not wish to deny the possibility of the transformation of a chronic engorgement into a cancer of the uterus. But if many physicians, for the most part of the old school, say that they have often seen this metamorphosis, and wish in consequence to make chronic engorgement play such a great part in the etiology of cancer, it is necessary that we should not forget that there is in this last disease a period in which it is completely impossible to distinguish cancerous infiltration of the lower portion of the uterus from a dilatation of this organ, due to another exudation of a benign nature.

Symptoms.—The local symptoms which most frequently accompany cancer of the womb are hæmorrhages, a purulent or putrid mucous discharge, and more or less sharp pains in the pelvis. Although these symptoms are very often met with, they do not appertain exclusively to the disease we are considering. They are also observed, as well as the general troubles which we shall hereafter indicate, in a great number of other affections of the womb, as for example, in severe flexions, in fibrous tumors, polypi, etc. It even happens that diseases of the uterus of much less importance give rise to much more marked symptoms than the disease we are now considering, and we have often seen women affected with a very advanced cancerous degeneration of the uterus, enjoy almost perfect health, and come to consult us upon some purely local symptom, to which they had not attached any importance.

This insidious progress of the cancer of the womb, which in no wise disturbs the patient, and sometimes not even the physician, is not generally observed, except when the disease is declared among old women, who have already passed the critical age. The only symptoms which are then met with are often only an inconvenient sensation of pressure in the pelvis, a serous, bloody or milky, and purulent discharge, a vesical

tenesmus, and painful defecation. The more considerable functional troubles are not observed except when suppuration and the decomposition of the parenchyma of the uterus have reached the neighborhood of the internal orifice.

But with young women the progress of the disease is almost always very different from what we have just described. In the same manner as in other neoplasmata of the womb, the first symptoms which disturb the patients are ordinarily various troubles of menstruation. Generally the return of each menstrual term is during a longer or shorter period accompanied by different symptoms of dysmenorrhœa, uterine colics, draggings, pains in the sacrum and in the thighs, deranged digestion, etc. The catamenia do not return at regular periods; sometimes they are much delayed, sometimes too often repeated; they are sometimes more, sometimes less copious, and in the intervals between the time of the periods a sanguineous or sanguinolent mucous secretion flows from the uterus. These symptoms ordinarily last sufficiently long, six to ten months, without the health of the patient suffering much therefrom, with the exception, perhaps, of a slight emaciation and a slow wasting of the strength. Generally the organism does not suffer until after having undergone considerable losses either from frequent and abundant hæmorrhages or from the copious mucous or puriform secretion, or else from the pains being sufficiently acute to exert an injurious influence on the nervous system.

The metrorrhagias are at first more or less periodical, and this peculiarity is observed even in patients who have long passed the critical age. It is also not rare to see patients who for some years have ceased to have their courses take these hæmorrhages for a return of their menstrual periods. The losses of blood are sometimes so considerable as to put the life of the patient in immediate danger, while at other times, it is not the quantity, but the frequency of the hæmorrhages which renders these losses alarming. Generally the hæmorrhages are abundant in proportion to the youth of the patient, as the destruction of the uterus advances with more or less rapidity and as the surface of the ulceration is more covered with richly vascularized fungosities; all these characteristics are more fre-

quent in medullary cancer than in scirrhus. The hæmorrhages often continue augmenting or diminishing until the end of the disease. At other times, without our being able to discover the cause, they suddenly cease after a longer or shorter duration, and the patients are exempt from them during the last few weeks or months of their lives.

As we have already said, these hæmorrhages alternate with discharges of another nature, the quality and quantity of which are subject to great variations. Sometimes there flows a small quantity of a limpid, serous, or slightly sanguinolent liquid, while at other times we observe an almost continuous secretion of a corrosive detritus, discolored and extremely fetid. This latter liquid sometimes eats the walls of the vagina, the labia majora and minora, and sometimes even the thighs, and causes upon the latter an erythematous or erysipelatous inflammation (while the inflammation of the mucous membrane puts on rather a croupy or diphtheritic character) which often augments the pains that previously were almost insupportable. Besides these inflammations, the irritation produced by the flow in question often gives rise to a pruritus of the vulva and vagina, sometimes lasting, sometimes transient, but in all cases very disagreeable. This in its turn, by reason of the moral excitement which results from it, is perhaps frequently the cause of the lascivity which has sometimes been observed among those women affected with cancer of the womb. As to the disagreeable odor of the liquid secreted by the genital organs, we are very much deceived, if, as is generally done, we consider this as a characteristic sign of cancer of the womb. In fact, on one hand, this is fully as often met with in other diseases of the sexual organs, in the course of which a rapid destruction of different tissues is noted, as for example, in fibroids, and polypi in decomposition. On the other hand, it is not rare to find a similar odor resulting from a want of cleanliness along with a simple inflammatory hypersecretion of the mucous membrane, as often happens when pessaries or sponges continually irritating the mucous membrane of the vagina have been for a long time worn without being changed. Finally, it should not be forgotten that in many cases of cancer of the uterus, when care has been taken to properly cleanse the genital parts, there

has not been perceived, during the whole course of the disease, the least trace of the penetrating odor in question.

Besides the hæmorrhages and discharges which have been mentioned, patients affected with cancer of the uterus are tormented with the most varied pains.

Generally the patients at first complain only of a disagreeable sensation of weight and of fullness in the pelvis, or indeed of transient pains ordinarily connected with the period of menstruation, augmenting in intensity and becoming more frequent according as the cancerous infiltration of the uterus progresses. Afterward these uterine colics are accompanied by twinges; and cutting, momentary, shooting pains, which sometimes rapidly pass through the pelvis in all directions. The cause of these pains is ordinarily a temporary hyperæmia of the uterus and of its appendages, which explains why they are ordinarily more violent at the approach of menstruation, or when an obstinate constipation occasions troubles of the circulation in the vessels of the pelvis. These pains often assume the character of real neuralgia, and they are not then confined to the pelvis, but they often radiate toward the loins, the inferior extremities, etc.

These pains are also in part caused by partial peritonitis, which is rarely absent in uterine cancer, and which sometimes terminates by the suppuration or decomposition of the plastic matters resulting from the exudation, in consequence of which the most varied devastations are observed in the organs of the pelvis, sometimes cold abscesses, sometimes decomposition of the muscles, the aponeuroses, the bones, etc.; a considerable effusion may, after becoming organized, compress the nerves of the interior of the pelvis and occasion acute pains. We also often see a more or less extended œdema of the lower extremities in consequence of circulatory disturbances arising from the compression of the veins of the pelvis. Finally, almost all the patients have much to suffer from derangement of the functions of the rectum and bladder. An obstinate constipation, often accompanied by a varicose dilatation of the hæmorrhoidal veins alternating with a painful tenesmus, which often lasts days and even entire weeks, symptoms of a catarrhal inflammation of the bladder, dysuria, strangury and ischuria, are often but

the precursors of a perforation of the rectum and the bladder. The urine, the fæces, and the septic material forming from the cancerous ulcer, then collect in the vagina and render the condition of the patient almost insupportable, if the greatest care is not observed in the cleanliness of the genital organs.

The frequent and abundant hæmorrhages, the considerable quantity of matter secreted and the sleeplessness caused by the acute pains, sooner or later bring on a notable wasting marasmus throughout the organism. Symptoms of anæmia soon appear, and with them serous effusions in the sub-cutaneous cellular tissue, in the peritoneal sac, and within the pleura; the patients become visibly emaciated and thus terminate their deplorable existence.

Diagnosis.—Easily as it is generally to recognize cancer of the uterus in the advanced periods of the disease, it is often very difficult to distinguish it, in the commencement, from a **simple induration of benign character** in the lower portion of the uterus. It is true that in the treatises and manuals of gynecology we find a number of symptoms which ought to characterize with sufficient exactness the development of a cancer of the uterus; still every day's experience demonstrates that there are cases where these symptoms do not at all suffice, and where even the most experienced gynecologists may be led into error. The diffuse swelling of the affected part, with a considerable hardness and a complete absence of sensibility, the appearance of the disease at the critical age, and the impossibility of referring the commencement of the affection to an anterior labor, are indicated as characteristic signs of the commencement of cancer. Whoever has observed a large number of women affected with chronic engorgement of the uterus will have convinced himself that in many cases of this disease we meet with all the so-called specific symptoms of cancer of the womb. We consequently think that we do not go too far in affirming that the results of vaginal exploration are never sufficient to distinguish in a certain manner a chronic engorgement of the vaginal portion from a scirrhous induration; and that in many cases a prolonged observation of the cause of the disease, and in particular of the alterations of the inferior segment of the uterus can alone establish the diagnosis.

The ulcerations of the os tincæ have also a great importance; for although chronic engorgement of the uterus is almost always accompanied by ulcerations of the orifice, it is generally easy, at least if the physician has had some experience, to distinguish them from cancerous ulcerations. They are always more superficial, never presenting the tunnel form characteristic of cancer. Their borders are never so elevated, swollen and clear cut: and if the surface of the ulcer is sometimes covered with fungosities, the latter, however, never attain the breadth and the size of those which carcinoma presents. The recommendation, given by many authors, to remove with scissors or the bistoury a small part of the vaginal portion, and to examine it with the microscope, in order to establish the diagnosis, dates from the time when it was believed that cancer was characterized by specific and unmistakable histological elements, an opinion unfortunately too wide spread in France. We have, in some cases, resorted to this procedure, but the result of the examination was always uncertain and without diagnostic value in spite of the great experience with the microscope which those persons had who undertook this examination. It is surely more important to conclude *ex juvantibus et nocentibus*, and we cannot here silently pass by the fact that in many cases where we thought we had a cancerous ulcer, we were soon convinced of the contrary by obtaining, at the end of a short time, a complete and durable cicatrization by means of the repeated cauterization of the ulcer with the red-hot iron. Besides the chronic engorgement of the uterus, there is no other disease of this organ which can be easily confounded with cancer, still we remember a case which we observed in Prague in 1849, in our gynecological clinique. The patient was a woman on the eve of confinement, in whom the os tincæ was covered with numerous and voluminous fungous excrescences, which so deceived the physician who made the examination that he considered it a case of **placenta prævia.** It would, however, have been easy to avoid this error by considering a little more attentively the condition of the parts surrounding the ulceration.

In another case, also, we witnessed an inexcusable error on the part of a physician, who mistook for a cancer of the womb a fibrous polypus of the size of the fist, protruding through the

uterine orifice, the inferior surface of which was covered with numerous furrows. The possibility of passing the finger along the edges of the orifice, or around the tumor should have removed every doubt from the mind of an attentive observer.

Progress and Prognosis.—Cancer of the womb always terminates fatally, provided no other intermediate mortal disease supervenes. But the duration of the disease is very variable, and depends upon the age of the patient at the commencement of the affection, upon the general state of the system, upon the form of the cancer, and upon various exterior causes. Generally, the progress of the disease is quite slow with those women who have for a long period passed the critical age, and we even know some cases of persons who lived five, six, and even ten years, after the time when the cancer had been first diagnosticated. The destruction of the tissues of the uterus ordinarily advances slowly, and when from the decomposition of the inferior parts, the somewhat considerable vessels of the superior parts are so compressed by the cancerous infiltration which surrounds them, that when the decomposition has reached them the hæmorrhage which results therefrom is quite slight and is even sometimes absent, a circumstance which certainly is very important for the conservation of the vital forces. But if the disease is developed in young women still menstruant, the periodic congestions of the uterus from menstruation hasten, on the one hand, the development of the cancerous infiltration, as well as the softening, the suppuration and decomposition of the affected parts; and on the other hand give rise to frequent hæmorrhages which soon exert an injurious influence upon the entire economy.

It is unnecessary to state that robust persons who have never had severe disease, support the hæmorrhages and the flowings resulting from the decomposition of the uterus much better than feeble individuals exhausted and dragged down by anterior disease; still it is not a rule without exception, and we have ourselves observed a great number of patients, who, although belonging to the first of these categories, succumbed at the end of a few months.

We know by experience that in the affections of the uterus,

as well as in those of other organs, the medullary cancer always has a more rapid progress than scirrhus, and communicates itself more quickly to the neighboring healthy parts. The prognosis is, in consequence, the more unfavorable, in proportion as the softening of the infiltrated parts is more rapid, as the ulceration increases in size and depth, and as its surface becomes covered with bleeding fungosities. The appearance of repeated peritonitis also implies a more rapid progress of the disease, for these inflammations are always the cause of a hyperæmia of the tissue of the uterus, which, in its turn, augments the rapidity of the infiltration, of the softening, and of the decomposition.

Finally, in making the prognosis, we should remember the exterior circumstances of life surrounding the patient. In fact, a woman belonging to the rich classes of society will be better able to protect herself against many causes which might injure her, to have regard for the necessary cleanliness and to procure for herself the remedies which certain accidents (hæmorrhages, inflammations, etc.) necessitate, than a patient in less easy circumstances, or perhaps living in utter poverty: for with these last the anxieties for the procuring of food, and various other moral affections, exert a very pernicious influence.

Treatment.—The incurability of cancer of the womb by therapeutical means is now so generally recognized that it will be superfluous to mention the various remedies which, from the most remote periods, have been proposed for combating the disease in question. No sensible physician will have the idea of obtaining a satisfactory result from the internal application of the different preparations of iodine, arsenic, mercury, chloride of gold, conium, the calendula officinalis, etc. We are even persuaded that a physician having the good of the patient at heart, ought the more readily to renounce the prolonged use of such remedies, since they are not only completely useless, but they disturb the digestion, and thus are injurious to the production of blood. For ourselves at least, we have completely renounced the attempt to cure cancer of the uterus by medicaments given internally, and we are content with combating the most important and the most dangerous symptoms

which appear in the course of the disease. In a word, our treatment is purely **symptomatic.**

If it were not so difficult to recognize scirrhus from its commencement so long as it does not extend beyond the vaginal portion, we could, by the extirpation of the diseased portion, save or at least prolong the life of the patient. Unfortunately, the physician is not ordinarily called until the cancerous infiltration has already reached the lower portion of the body of the womb, in which case the extirpation of the neck would be perfectly useless. But, if the disease is really limited to the vaginal portion, and if we could hope for a favorable result from the extirpation, it should always be performed by means of curved scissors, in the interior of the vagina, without previously withdrawing the inferior portion of the uterus outside the labia majora, for while acknowledging that tractions exerted upon the uterus by means of Muzeux's forceps are ordinarily quite harmless, if, indeed, the sexual organs are in their normal condition, we should never forget that often, even in the commencement of the disease, we find, coexistent with the cancerous affection, adhesions between the peritoneum, the uterus, and the neighboring organs. If, then, we exert too much traction upon the womb, it may easily happen that the excessive tension of the adhesions will give rise to a new peritonitis, the issue of which can never be predicted; or else previous inflammations of the peritoneum may have rendered it friable and diminished its extensibility to such a degree that the violent tractions exerted upon the uterus may very easily tear the membrane or separate it from the subjacent organs. We have ourselves, in a similar operation made with the assistance of our friend Morawek, observed a transverse rupture of the peritoneum four-tenths of an inch in length in the inferior portion of Douglas' fold.

Repeated cauterizations of the vaginal portion with the red-hot iron have been warmly recommended in many quarters for the radical cure of cancer of the uterus. We do not wish to deny that this means may sometimes in the course of the disease render good service in arresting the hæmorrhage, checking any excessive secretion and retarding the progress of the disease; but we cannot boast of ever having obtained by this means a complete

cure of cancer of the uterus, which indeed would not be possible except by completely removing the diseased part. But as nobody will be so rash as to destroy with red-hot iron the tissue of the uterus beyond the insertion of the mucous membrane of the vagina, as would be necessary when the disease is far advanced, it is clear that this means must be reserved for cases where the infiltration does not extend beyond the vaginal portion, and then only we may hope to obtain some success. But, as in such cases the extirpation of the vaginal portion by means of scissors is more sure and more rapid, we should not easily decide to apply the actual cautery except in those cases where we are not sure if the hypertrophy and ulceration of the vaginal portion are of a cancerous nature, or where we have only to treat a simple chronic engorgement. Here the repeated cauterization of the ulceration will, on the one hand, assure the diagnosis by the cicatrization of the ulceration, which will ordinarily take place quite promptly if it be not of a cancerous nature, and, on the other hand, it may render the best service as a means of treatment. We ought, finally, to mention still another procedure which was recommended for the radical cure of cancer of the womb, and even many times performed. We refer to the extirpation of the entire uterus. If it is considered that, according to the researches of Breslau,* out of nineteen such operations, two only had succeeded (Langenbeck's and Récamier's) it will be comprehended that we do not wish to pronounce upon the admissibility of the method in question. It belongs to history, and surely no one at the present day would perform it for uterine cancer. In fact, the two operations were performed at an epoch (1813 and 1829) when the anatomical diagnosis of cancer was by no means certain, and we cannot help suspecting that Langenbeck and Récamier really operated for profound ulcerations, which were in no manner carcinomatous. On the other hand, the operation, which was never recommended unless the disease was very advanced, has on that account, less chance of success, for then we rarely fail to encounter pathological alterations in the neighboring organs.

* Breslau, De totius Uteri extirpatione. Monachii, 1852.

After what we have said, it may be understood how little we should expect from the operatory methods recommended for cancer of the womb; and as, on the other side, the experience of every day sufficiently demonstrates the uselessness of divers therapeutical agents, it only remains for the physician to combat the painful and dangerous accidents which may supervene during the course of this terrible disease, prolonging the life of the patients as much as possible and seeking to soothe their last days.

Among the accidents, we see, in the first place, frequent hæmorrhages which exhaust the forces of the patient and by their violence may instantly put life in danger. Convinced of the inutility of medicines taken interiorly to arrest hæmorrhage, we limit ourselves to the use of local hæmostatics. If the loss of blood is slight, injections of cold water into the vagina ordinarily arrest it; but if this does not suffice, the injections should consist of a solution of perchloride of iron, of the sulphate of copper, or zinc, of tannin, etc., or of equal parts of vinegar and water. If none of these means produce the desired result, the vagina should be plugged with balls of lint previously dipped in cold water or in one of the styptic liquids just mentioned. In a desperate case we might have recourse to the actual cautery, which will here prove the best hæmostatic. For it not only destroys the numerous excrescences which are sometimes voluminous, and, being richly vascular, are favorable to hæmorrhage, but it occasions an inflammatory reaction upon the surface of the ulceration and in its immediate neighborhood, in consequence of which an exudation is formed which compresses the vessels and renders them impermeable for a longer or a shorter time. We have seen many patients who, after having undergone considerable losses, were free from them for many months and even to the end of their lives after reiterated cauterizations.

The pains which often appear during the course of the disease are also among the symptoms which demand the assistance of the physician. They must be met according to the cause which has produced them. The narcotics render very good service against the painful contractions which result from the distention of the tissue of the uterus by infiltration taking

place there. Interiorly we administer opium and its preparations, we order lavements, with twelve to twenty drops of the tincture of opium, we rub the hypogastrium with an unguent containing opium, extract of belladonna or chloroform, and if these remedies do not suffice or gradually lose their efficacy, we pass to the endermic application of acetate of morphia. If there is no tendency to hæmorrhage we may sometimes obtain good effects from full tepid baths, or simply from hip baths, and in cases where the violence of the pain obstinately resists all the remedies indicated, we may calm the patient by repeated anæsthetization by means of chloroform.

The pains which result from a hyperæmia of the uterus and of the neighboring organs, demand a slightly antiphlogistic treatment, repeated local blood-lettings in the neighborhood of the uterus, and a derivation from the intestinal canal by means of the neutral salts; but we must entirely reject the general bleedings recommended by some authors, to diminish the congestion of the womb. In fact, on the one hand they do not moderate the pains, except momentarily, and on the other, they weaken the patients; the proportion of water in the blood increases; and we see, sooner or later, all the series of hysterical and nervous symptoms appear.

The physician can do almost nothing when the pains result from the pressure exerted by the dilated uterus and by the exudations which envelop it, upon the nerves of the pelvis; for he cannot remove the cause. He can but order narcotic remedies; and when the compression of the veins of the pelvis has given rise to a painful œdema of the lower extremities, he can wet them with an unguent of opium or of chloroform, and lightly compress the diseased member by means of a simple roller bandage. But if the circulatory difficulties in the interior of the pelvis cause the blood of the crural veins to coagulate; if an excessive sensibility, a redness, and a swelling along the course of these vessels render an inflammation of the walls of the veins suspected, recourse must be had to local sanguineous emissions, to the application of emollient cataplasms, and to frictions upon the diseased part with the Naples ointment mingled with opium.

The constipation and the painful tenesmus which are rarely

absent at a certain period of the disease, demand the employment of emollient and soothing enemata and gentle purgatives.

If the disease is accompanied by a copious, fetid and corrosive uterine discharge, we should pay the greatest attention to cleanliness; we should prescribe injections and tepid hip-baths; and where the warm water does not suffice to diminish the flowing and to remove from it its disagreeable odor and its corrosive properties, a solution of chloride of lime may be taken, a mixture of water and the balsam of Peru, a decoction of aromatic herbs, or, indeed, what from our own experience we can mainly recommend, willow-bark charcoal finely pulverized and suspended in water. In some cases we have obtained a satisfactory result from the injection of China tea.

Care for the cleanliness of the sexual organs is also the best means of preventing the spasm and pruritus of the vagina. Furthermore, these pains are sometimes so obstinate that they resist the injection of narcotic remedies and the tamponing of the vagina by means of sponges smeared with an ointment of opium and belladonna; the only certain means in such cases is a frequent narcotism by means of chloroform. [The vaginal injection of the vapor of chloroform or of carbonic acid gas is recommended by Simpson.]

Finally, we should yet remember that during the whole duration of the treatment the physician should strive as much as possible to sustain the strength of the patient. He will order good nourishment, easy of digestion, rather animal than vegetable; he will not interdict, if the patient desire it, the moderate use of wine or beer; he will exact as much as possible some hours regularly spent in the open air; and if he perceives symptoms of anæmia, he will combat them by giving some mild preparations of iron or a mineral ferruginous water.

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Art. XII.—Anomalies of Menstruation.

Under the name of **menstruation** we commonly understand a series of phenomena manifested in the female organism, and having for its first cause the periodic ovulation, which takes place in a Graafian vesicle. One part of these phenomena is concealed from the investigation of the physician, the other is accessible to the senses. We must class in the first category those changes unappreciable during life, which the ovaries, the tubes, and partially the uterus, undergo. In the second, the morbid symptoms which the external genital organs and the breasts present, the functional difficulties, often but slightly apparent, which are manifested in the vascular and nervous systems; finally, and especially, the flow of blood externally.

We think that for the comprehension of many questions which we shall have to resolve hereafter, it is not completely useless, before commencing the history of the anomalies of menstruation, to say a word respecting the anatomical changes which constitute and accompany a function so important in the feminine organism. For more ample details we refer the reader to our *Treatise upon the Art of Obstetrics.*

The numerous and learned researches which have been made in various countries have established beyond doubt that the periodic maturation of each ovule, developing in the ovary, is accompanied with a congestion, equally periodic, of all the genital organs. This hyperæmia is manifested in the first place in the walls of the Graafian vesicle, which contains the ovule arrived at maturity. If the vesicle is superficial, a con-

gestion relatively slight will suffice to bring on the rupture. It will take place by the simple augmentation of the liquid contained in its cavity. But if, on the contrary, the ovule is contained in a vesicle deeply sunk in the interior of the organ, it will require a force, a much greater pressure acting from within outward, to burst the thick walls which surround it. A simple increase of the contents of the vesicle will not in that case suffice. The hyperæmia then extends much further; it sometimes embraces the whole ovary. In these cases the organ is of a deep red, softened and friable. If the congestion is very intense, we remark the rupture of more or less numerous vessels; there is then an extravasation of blood, not only in the follicle containing the ovule which is to be expelled, but often also in two or three of those near it, and even in the proper tissue of the ovary. When finally the vesicle, distended beyond measure by the excess of its contents and by the effusion of blood, breaks, the rupture which takes place is always greater than that of a follicle situated superficially.

After the exit of the ovule, the membrane which invests the follicular cavity softens, thickens, and folds upon itself. The external tunic, being more elastic, shrinks and contracts the cavity. At this period the latter is full of little clots of fibrin and blood, which can but partially escape, for the borders of the opening soon approach and become glued together, leaving a little linear or star-shaped cicatrix. The exudation which has taken place in the walls of the follicle as well as the remains of the blood clot, which are not susceptible of absorption, undergo a fatty degeneration. Thence the yellow color of the follicular remains and the title of **yellow body** (*corpus luteum*).

When the phenomena just described are often repeated in the same ovary, the numerous cicatrices which are formed render the surface uneven and wrinkled. These characteristics are especially marked in old women who are no longer menstruant, and whose ovaries are atrophied.

But, as we have already said, the uterus also participates in the menstrual phenomena of which the ovary is the seat. So long as the congestion of the uterine walls does not pass a certain limit, the parenchyma is simply more soft and friable, con-

taining much blood. The entire organ is a little tumefied, its vessels are dilated and gorged with blood. The mucous membrane is also congested, of a deep red, sometimes of the color of dregs of wine. The utricular glands of the cavity of the body, as well as the mucous follicles of the neck, are the seat of a hypersecretion—in a word, the uterine mucous membrane undergoes modifications analogous to those which are presented in acute catarrh.

When the congestion passes the limit we have just indicated, there occurs in the mucous membrane of the proper cavity of the organ, a rupture of vessels and an extravasation of blood, followed by a flow of this liquid from the vagina. Thence the menstrual hæmorrhage. The vessels of the mucous membrane of the neck resist much longer. Consequently it is rare for them to burst. In this part generally an augmentation of the mucous secretion only is remarked. The most probable cause is that the hyperæmia is here much less considerable than in the body and the fundus of the organ. During the continuance of the hæmorrhage, the epithelium of the uterine mucous membrane is detached and falls off, if not entirely, at least in part.

In the other portion of the genital apparatus the menstrual modifications are limited to a congestion, a softening, a tumefaction and a hypersecretion more or less from the tubes, from the vagina, and from the external parts. It is certainly very rare for these organs to be the seat of a sanguineous effusion analogous to uterine hæmorrhage. We should note also the tumefaction of the breasts which accompany menstruation in most women. Sometimes there is even a painful swelling of the milk ducts and of the lymphatic glands. Neither is it rare to meet with a more or less bright color of the nipple and its areola at this period.

The anatomical modifications which the female sexual organs present during periodic maturation of the ovules, and which we have but noticed, also provoke in other parts of the body, sometimes quite distant, certain abnormal phenomena which are a proof of the powerful influence which the sexual life exerts upon the whole female organism. The menstrual work is frequently preceded and accompanied by mental alienations, more or less transitory, sometimes with a veritable melancholy, with

functional troubles in the organs of sense, with abnormal irritability of the nervous system, both motor and sensitive, with an unaccustomed activity in the whole circulatory apparatus. This function of the female organism is also often the cause of the most varied difficulties of digestion. Thus it may occasion anorexia; or, on the contrary, an avaricious appetite; or even an abnormal accumulation of gas in the intestinal tube; colics; diarrhœas; etc. Finally, it is not rare for the skin to become the seat of specific alterations during the continuance of the menstrual period. We will only mention here the puffing of the face so frequent in women during menstruation, the livid color of the eyelids and the lips, the bluish circle around the eye, the eruption of various exanthemata, such as acne, pityriasis and urticaria.

We think that what we have said will be sufficient to demonstrate the high importance of menstruation for the female organism. Hence a detailed study of the various anomalies of this function will not appear out of place in a work like this. We will distinguish seven principal anomalies: 1st. The premature appearance of the courses. 2d. Their too tardy appearance. 3d. Their premature cessation. 4th. Their tardy cessation. 5th. The absence of the principal symptom, that is to say, the hæmorrhage during the nubile period. 6th. The excess of the sanguineous flow. 7th. The difficult menstruation which is accompanied with violent pains.

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§ 1.—*Premature Menstruation.*

It is generally at the age of from 14 to 16 years that the menstrual molimen is manifested for the first time, either by the flow of blood or by other phenomena. The appearance of the courses is, to a certain extent, always united with a certain degree of development in the sexual organs. It is clear that when the parts are not sufficiently developed to permit the periodic maturation of the eggs in the ovaries, menstruation cannot have a regular course. Hence it is only with the greatest circumspection that we should accept the cases which the ancient and modern authors relate, in which they have observed in very young infants a regular menstrual flux.

Still the authenticity of many of these facts is entirely incontestable. It is undoubted that a sanguineous flow, having all the characteristics of menstrual hæmorrhage, has been observed in young children much before the period of puberty. In all these cases many phenomena, from time to time, showed beyond a doubt that there was a rapid development of the sexual organs, a **premature puberty.** The breasts were developed, the axillæ and pubes were covered with a quantity of hair, rare at that age; the whole body showed an exuberance which only belongs to the nubile woman. [A few years since we saw a girl of 4 years of age, very large and fleshy,

form much developed, breasts large and shaped, who had for six months regular menstruation, and displayed marked sexual feelings.] At the same time, the hæmorrhage showed itself at regular intervals and was preceded by phenomena which did not permit one to mistake a congestion of the genital organs. The majority of these children complained of a feeling of weight, fullness, pressure, a dragging in the pelvis, disagreeable sensations in the hypogastrium and seat, painful tumefaction of the breasts, troubles of digestion, slight symptoms of fever, etc.: the same symptoms which precede, in the nubile woman, the commencement of menstruation. We ourselves, in 1851, treated a young girl of about 8 years of age, whose appearance was that of a girl of thirteen or fourteen years, who for some time had suffered from very abundant and debilitating periodical hæmorrhages, always preceded by the symptoms which we have just described. The young girl is now thirteen years old, and during the whole of this time, with the exception of some months, during which she was laboring under chlorosis, her menstruation has always been regular.

Conformably to what we have previously stated, we should not take every sanguineous flow from the sexual parts, manifesting itself in a very young girl, for the menstrual flux. The most varied causes may give rise to these hæmorrhages. It is not rare to meet with them in newly-born children in consequence of the accumulation of blood in the abdominal organs, which results from the change in the circulation; they are, furthermore, observed at the same time with the decompositions of blood so frequent and fatal at this age. With older children, it is manifested during the course of acute exanthemata, especially of rubeola and variola; in constitutional diseases, such as scorbutus; in the course of the circulatory disturbances which the affections of the heart and lungs produce in the abdominal organs, etc. These different facts have been observed as well by us as by other physicians. Such hæmorrhages are distinguished from the menstrual flux, in the first place, in that their cause can frequently be recognized in a disease of the blood or of some particular organ. They also appear only once, or at least in cases where they are repeated, they have no regular periodicity. And, finally, the phenomena

above enumerated are not observed, which are indicative of a premature development of the genital organs.

As to the influence of premature menstruation upon the general organism we will say that certain observations show that hæmorrhages, even abundant, have occurred without injurious consequence to the health. Other facts, on the contrary, seem to prove that these losses of blood may be followed by an anæmia which obstinately resists every means employed, and which is prolonged for a considerable time, and even beyond the ordinary epoch of puberty. It may even be the cause of fatal diseases, as for example, of general dropsy, pulmonary phthisis, premature marasmus, etc. It results from this, that in the anomaly which now occupies us, the greatest care should be used in the prognosis, and that all the more as our art is at present almost powerless to combat it.

The treatment may always be reduced to a proper hygienic regimen. Residence in the country should be especially recommended with frequent, but moderate, exercise in the open air, river baths, cold water applications prudently administered. We should shun with the greatest care every cause exciting the animal instincts. At the same time we should combat every tendency to anæmia or weakness by a substantial nourishment, and by the use of tonics—taking care, however, to avoid producing congestions in the organs of the pelvis.

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§ 2.—*Tardy Menstruation.*

It is not generally difficult to state exactly in what cases menstruation ought to be called premature. The case is far otherwise when we have to determine whether or not there is

a delay in the appearance of the menses. For if the fifteenth year be taken as the middle epoch in which the first menstruation is manifested, its appearance in the sixteenth or seventeenth year will be in fact a delay ; but this delay is so frequent, and is so rarely the cause of troubles in the health, that it cannot properly be called a pathological condition. According to Brierre de Boismont, in 1200 women,

127	had not menstruated	at	17	years.
90	"	"	" 18	"
35	"	"	" 19	"
30	"	"	" 20	"

It is not rare for the first menstruation to delay its appearance. Hence, in what follows, we shall only regard those cases in which this anomaly is the cause or the effect of a diseased condition of the system.

Etiology.—Among the causes of what has been called **menstruatio serotina** the most frequent is the **abnormal composition** of the blood peculiar to **chlorosis.** Every one knows that this disease is often manifested at the commencement of the period of puberty, and if then seasonable recourse be had to proper treatment, years may elapse without the menstrual flux appearing. However, this is far from proving that in women who present this anomaly, the internal menstrual phenomena are completely absent. The dysmenorrhœal accidents periodically returning, and often in a very evident manner, the hypersecretion of the mucous membrane which accompanies them, and finally, the possibility of fecundation, frequently observed with these women, are so many facts which prove that in spite of the absence of hæmorrhage, the periodic maturation of the ovules can equally take place. We have still present in our memory the following case: a young girl, twenty-two years of age, chlorotic and not yet menstruant, died of pneumonia. At the autopsy, in one ovary, a Graafian vesicle was found, which had been ruptured but a little before, and contained a clot of blood yet fresh. Further, the two ovaries presented a great number of cicatrices, which were the certain signs of as many previous vesicular ruptures.

A second cause of delay of the menstrual hæmorrhage is

scrofula and **tuberculosis.** We have noted the epoch at which the courses appeared in thirty-one girls suffering from well-marked scrofulous affections. We found that with nineteen among them, the menstrual flux was not established until the twenty-first year. The delay so frequently occurring in the development of the whole body, and especially of the genital organs, with young scrofulous girls, the serious derangement of nutrition which occasions this disease, and the peculiar tendency to chlorosis which these subjects show, are in our view the causes of this phenomenon. Tubercles, especially those of the lungs, often take, at the period of puberty, a very speedy course. The congestion and inflammatory accidents of which the affected organ is the seat, the rapid ravages which the disease makes, the considerable emaciation which is the consequence, the progressive consumption of the entire mass of the blood, sufficiently explain why the congestion of the pelvic organs, and thence the menstrual discharge, cannot take place under these circumstances.

It is not rare to see the **development of the sexual organs retarded,** so as not to be in proportion to that of the rest of the body. It is in this category that we must class those frequent cases where robust young persons, well-developed, in the best health and of a blooming appearance, remain without menstrual flux considerably beyond the ordinary epoch. It can be understood that in such cases a minute examination of the parts can alone disclose the cause of the anomaly. See what we have before said upon this subject in speaking of the faults of conformation of the uterus and its appendages.

Cases are rare in which an attentive examination of the sexual organs and of the entire body will fail to disclose any morbid condition to which we can attribute the delay of menstruation. In such instances we must seek for the cause in a **defective innervation of the genital apparatus.** Certain facts prove that sometimes nervous alterations may prevent the congestion of the organs of the pelvis from taking place. Cases have been observed where menstruation, existing for years in the most regular manner, was suddenly and forever interrupted by a complete or incomplete paralysis of the lower half of the body. We think we do not go too far in admitting

that alterations of much less extent, in the conductibility of the nervous organs, as well peripheric as central—alterations, the nature of which is still completely unknown—may be attended by analogous results.

According to many of our observations, the **alterations of the texture of the uterus and the ovaries** may also be the cause of a delay in the appearance of the catamenia. From their frequency, the **chronic inflammations** deserve here the first place. Sometimes the congestion which the first ovulation occasions, instead of producing the rupture of the capillaries of the uterine mucous membrane, determines a plastic exudation between the anatomical elements of the walls of the womb. This plasma soon becomes organized. It then exerts a continuous pressure upon the vessels, and diminishes their permeability in such a manner that the congestion, which takes place at the following menstrual epoch, no longer suffices to overcome this obstacle and only determines a feeble degree of hyperæmia in the uterine walls. Hence the vessels of the mucous membrane resist the pressure of the blood. We easily understand why a hæmorrhage cannot then occur. From our experience, the chronic engorgement of the womb is so frequent a cause of the delay of the menses, that it is astonishing that this circumstance has not hitherto been appreciated at its just value by any of our associates.

It is scarcely necessary to add that the **complete obliteration** of the uterus and vagina must necessarily prevent the flow of the menses. We have already described this anomaly.

Among the **affections of the ovaries** we will name, by the side of the faulty or retarded development of these organs, cysts of the Graafian vesicles which we have several times met with at the autopsies of little girls who had not yet attained the age of puberty. Furthermore, we are not far from admitting that the formation of cysts proceeds from the same cause as the delay of the menstruation. We will return to this point of pathology in treating of the diseases of the ovaries.

Progress.—The influence which this anomaly exerts upon the general health is exceedingly variable. On one side, we behold women attain the age of twenty-five years without ever

having menstruated, and in spite of that be perfectly well, so that it must be justly admitted that the absence of menstruation does them no injury. In other cases, on the contrary, and their number is not small, we meet with most diverse troubles indubitably resulting from the anomaly in question.

Here we abstract the different symptoms of chlorosis which so often accompany the delay of the menses and which are oftener the cause than the effect. Still, we should be mindful of the hypersecretion of the mucous membrane of the genital parts which is here so often observed, and which, when it lasts some time, is subject at certain epochs to a recrudescence due to this, that the menstrual congestion, which is not sufficient to effect the rupture of the capillaries, suffices, however, to unusually excite the secretion of the mucous membrane. It is in this manner that chronic catarrhs are developed, and leucorrhœa, which, even after the establishment of the courses, often obstinately resists all medication. The engorgement of the womb, which is often the cause of the delay of menstruation, is also often the effect of it. The disgorging of the vessels filled with blood, in consequence of the congestion not being able to take place, a chronic stasis results, which, when it lasts long, will inevitably occasion an exudation into the uterine parenchyma with other alterations peculiar to chronic inflammation. It is probably also in this manner, that the different pseudo-plasmata are developed, which it is not rare to find in the circumstances we have just described.

Daily experience also teaches us that the delay in the appearance of the courses may, either by an abnormal irritation of the genital parts, or from the different troubles of digestion and assimilation which are the consequence, produce anomalies in the nutrition of the nervous system, and so give rise to the whole train of symptoms called hysterical.

Prognosis.—In making the prognosis, we should, in the first place, regard the etiology of the affection. It will not be very favorable when we have recognized that the absence of the menstrual flux is due to defective conformation, or to a want of development of the genital parts. Art is also almost powerless when the subject is attacked with an inveterate scofula, or with a very advanced tuberculosis. There is more hope when

the causes of the anomaly are simple difficulties of innervation without profound changes in the texture of the nervous centres; and success is still more probable where a uterine malady, susceptible of cure, or a recent chlorosis, is the cause of the evil.

Treatment.—Etiology will here still guide the practitioner, in the choice either of regimen or of internal remedies. As for that, we refer the reader to the chapters of this work which treat of the different diseases which we have cited. We will only here describe the procedure which seems to us the most proper to provoke the menstrual hæmorrhage when its appearance is too long delayed.

The most suitable remedies are those which are capable of producing a congestion of the organs of the pelvis or of increasing it if, though already existing, it is insufficient. In the first place, we will cite the application of heat in the form of fomentations upon the hypogastrium, hip baths and pediluvia and the use of the ascending hot douche. When the hot water is not alone sufficient to accomplish this result, we may add to it irritating medicaments, such as the flower of mustard, common salt, ashes, etc. When the presence of the hymen will not permit the douche, it may be substituted by a strong, cold jet d'eau, falling from a considerable height upon the sacral region. Where it is possible to use the speculum, repeated scarifications upon the neck, and the application of three or four leeches, have the best results. Cauterizations of the os tincæ and of the walls of the vagina with the solid nitrate of silver, are also of service, or the application upon these parts of the tincture of iodine, collodion, pyroligneous acid, or, in short, any irritating substance. It should not be forgotten that these various medicaments exert a more energetic action when they are used a little before the epoch when the various phenomena which the organism of the patient presents indicate that the maturation of an ovule has taken place in one of the ovaries and has already excited in the organs of the pelvis a certain degree of natural congestion. Finally, it is a fact proved by numerous cases, that the regular satisfaction of the sexual instincts plays here an important part. For more ample therapeutical details, we will refer the reader to

what we shall hereafter say upon the treatment of amenorrhœa.

Bibliography.—See Brierre de Boismont (l. c.) and the works that we have indicated on p. 317.

§ 3. *Premature cessation of the Menses.*

In our temperate climate the menstrual flux ordinarily disappears at the age of 45 to 48 years: at this time of life which has been called the **critical age,** the maturation of the ovules, of which we have already spoken, terminates, and with it is extinguished the susceptibility for fecundation. Exceptions, however, are not rare. The cessation of the menses is often observed much before or long after the age we have mentioned.

Generally, the observation is made that the women with whom menstruation has been established at a very early age, for example, at ten or eleven years, attain sooner than others the critical period, so that for them the menopausis occurs at forty or forty-two years. Another cause of this anomaly is premature marasmus such as is especially observed after frequent labors, occurring at short intervals. It also occurs, when, in consequence of abundant losses of blood, difficulties of digestion, different organic diseases, there is developed in a woman an anæmic condition. Among the diseases of the organs of generation it is their premature involution, accompanied with atrophy, which is the most frequent cause of early menopausis. It is also often observed when both the ovaries are the seat of an organic affection which profoundly changes their texture. Finally, this anomaly is sometimes owing to an hereditary predisposition. All the members of a family are sometimes seen to be thus affected at the same period of life.

From the time when the menstrual hæmorrhage was considered as an evacuation of injurious substances, without which good health could not be possible, it was generally believed that its premature cessation ought to have the most direful effects, either for the general constitution or for the sexual organs only. This opinion has necessarily been considerably

modified since the menstrual flux has been regarded simply as a symptom of well known changes taking place internally. It is true that it cannot be denied that a sudden suppression of the courses, brought on either by internal or external causes, has ordinarily bad results; but, on the other hand, it is also as constantly found that no harm results to the economy from a premature menopausis, when it has for its cause a too early senile retraction of the genital parts, or an atrophy, or a hereditary disposition; when it takes place in women menstruant from a very early age; or, finally, when it accompanies chronic and debilitating diseases. The fact has also been established in recent times by the methods which exploration offers us, that many of the organic affections of the genital apparatus which were attributed to the cessation of the menses, ought not to be regarded as the effects of the menopausis, but rather as its causes.

In a prognostic point of view it would be very important to determine whether, in spite of the cessation of the hæmorrhage, the periodic maturation of the ovules takes place in the ovaries, and whether the congestion provoked about the organs of the pelvis still exists or not. For it will only be in the affirmative case where there is an impossibility for the vessels gorged with blood to pour out their contents, that this could have unfortunate results; such, for instance, as an augmentation of the secretion of the mucous membrane, inflammatory accidents about the uterus and ovaries, or the development of certain pseudo-plasmata. The greatest part of these dangers will disappear when the cessation of the courses is caused by the absence of congestions and hyperæmias around the pelvis.

Unfortunately the hæmorrhage is the only objective symptom of the menstrual molimen which takes place in the interior of the organism. When this symptom fails, it becomes impossible for the physician to know whether or not this function is regularly performed. Hence the prognosis of the results which this anomaly may induce is extremely difficult. Still we shall be rarely deceived if we do not attach too much importance to every case in which anamnestic signs or the result of exploration lead us to infer the probable cause of the trouble to be a premature atrophy of the organs of generation.

In these cases it will be better to adopt expectant treatment,

and to beware of the useless employment of emmenagogues, which may provoke congestions more likely than ever to prove dangerous. But if, on the contrary, the menopausis is accompanied by an unmistakable hyperæmia of the uterus and its appendages, we should have recourse to local blood-lettings and mild purgatives, to cutaneous irritants—in short, to all the means which we have noted in speaking of the treatment of acute and chronic inflammation of the uterus.

When, finally, the anomaly of menstruation is caused by an organic affection of the womb or the ovaries, the physician ought to give to it (as well as to the critical period generally) his very particular attention, for experience has proved that the disease at this period frequently makes very rapid progress.

§ 4. *Of Delay in the Cessation of the Courses.*

It is not rare to meet with women of fifty years of age who are still menstruant. Past this age, however, we do not often see a genital hæmorrhage which is periodical and proceeds from the ovarian molimen. Certain authors report observations which seem to prove the contrary. Some women of a much more advanced age may have presented periodical sanguineous discharges from the vagina, which have been taken by physicians for a true menstrual hæmorrhage. Without wishing absolutely to deny that in certain persons the maturation of the ovules may continue even to a very advanced age, we still think that it is going too far to claim this faculty, as has been done, for persons of sixty and even of seventy years. An impartial criticism of the facts observed, has convinced us that here there could not be any possibility of a veritable menstruation ; for it has been demonstrated that in the reported cases there has either been some disease, some anomaly of the genital parts, which itself alone explains sufficiently the hæmorrhage without menstrual congestion, or else the intervals between the discharges were not at all regular. Finally, every one knows that hæmorrhages, even of other organs, may exhibit both in man and woman a certain periodicity.

The most aged woman with whom we have had an opportunity to observe a hæmorrhage which we were disposed to regard

as menstrual, was fifty-three years old. Another person, who at sixty-one years still had a sanguineous discharge from the vulva, returning at tolerably regular intervals, died from pneumonia during one of these hæmorrhages. The autopsy exhibited the ovaries completely atrophied, changed into a very dense, inodular tissue, without the least trace of a corpus luteum or of recent extravasation of blood. The upper portion of the cavity of the neck contained two mucous polypi of the size of a bean. In a third case, affecting a woman sixty-four years old, the menstruation had completely ceased from her forty-eighth to her fifty-second year. Afterward a sanguineous discharge was established, returning every three or four weeks until her death. This woman suffered from an insufficiency and stenosis of the mitral valve. The autopsy did not permit us to mistake the circulatory difficulties which the deformity of the heart had provoked in the system of the inferior vena cava, and these troubles might well have caused the hæmorrhage, for here also the ovaries were atrophied and showed no trace of the recent maturation of an ovule. The uterus was enlarged, and softened, the mucous membrane congested, and the cavity contained some recent clots of blood. These facts, borrowed from our own individual practice, show that too much prudence cannot be brought to the interpretation of such cases. At the same time they prove that a certain periodicity of the hæmorrhage at an advanced age, cannot be at all considered as a certain proof that menstruation is the cause of it.

We do not consider such a hæmorrhage as menstrual, except when, at the ordinary epoch for the critical age, there has been no prolonged interruption in the return of the flow; when the intervals do not evince any notable difference from their previous duration; when the quantity of blood is neither very copious nor very scanty; when the hæmorrhage is preceded by a more or less complete series of phenomena which characterize the ovarian molimen; and when, finally, there exists no disease either in the genital parts, or in any other organ, which can with reason be considered as a cause of the hæmorrhage.

We have never observed that the delay of the menopausis had any injurious result upon the health, with the exception of the cases where the losses of blood have been excessively abun

dant, and produced a general anæmia. Still it is not rare for the menstrual flow to be more abundant at an advanced age than in youth. The cause is certainly, in the majority of cases, in the senile rigidity and the friability of the uterine vessels, which are no longer in a state to resist the pressure which the blood exerts upon their walls. This favors the rupture and extravasation.

§ 5. *Complete Absence of the Menstrual Flow—Amenorrhœa and Vicarious Menstruation.*

We have already endeavored in previous chapters to demonstrate that the menstrual flux constitutes but one of the symptoms of periodic maturation of the ovules. We stated at the same time that this latter might take place very regularly, and that the power of conception in the woman might properly exist even in the complete absence of the menstrual discharge. It is this anomaly which is called amenorrhœa.

Formerly it was the custom to consider amenorrhœa as a special disease, existing by itself, and treatises on pathology devoted a separate chapter to it. Now, however, it is generally recognized that some disease of the sexual apparatus, of more distant organs, or else some defect in the composition of the blood, is the cause of this anomaly of menstruation. Amenorrhœa, then, is nothing but a symptom of very various pathological conditions. Those which have their seat in the genital organs have already been described in this work in detail. We refer the reader to the chapters which treat of the deformities and anomalies of the uterus, of the neoplasmata of its walls, of acute and chronic metritis, of its absence, of its rudimentary condition, of atrophy, of pseudoplasmata of the ovaries, etc., where we have already designated amenorrhœa as one of the symptoms which accompany these different affections. In speaking of the delay in the establishment of the courses, we have already mentioned the morbid conditions of the blood and organs unconnected with generation, which may exert an unfavorable influence upon the regular course of menstruation. The remarks offered upon this subject relative to the consequences of chlorosis, scrofula and tuberculosis; upon the absence

or the derangements of innervation, in the whole body or in certain organs, all these apply equally well to the etiology of amenorrhœa.

If our opinion that amenorrhœa should be regarded only as a symptom of other morbid conditions is true, we are thereby authorized not to enlarge upon the etiology of this phenomenon. If it be objected that a large number of cases belonging to this category are susceptible of another interpretation, seeing that the menstrual flux is often suddenly suppressed from the action of exterior causes, we would answer that, even in those cases which are observed as the consequence of colds, lively, moral impressions, errors in regimen, etc., the phenomenon of the interruption of the flow of blood is never anything but secondary, for it is always due to an affection of the uterus and its appendages, the immediate effect of these injurious causes.

It is, for example, undoubted that the action of cold upon the system of a woman who is menstruating, when it occasions the suppression of the menstrual flow, almost always induces this phenomenon only by provoking an acute metritis, which may pass into a chronic state, into the condition of **engorgement,** and thus produce a permanent amenorrhœa. Neither can the effect of a lively emotion be otherwise explained, than by admitting that through the sudden and unusual irritation of the nervous system, the innervation of the sexual apparatus undergoes certain modifications which prevent the congestion of the organs of the pelvis, essential to the periodic maturation of the ovules. When the amenorrhœa is declared after depletion, as has often been observed, we must look for the explanation of the phenomenon, in the fact that the blood of many women may, as is known in consequence of comparatively inconsiderable losses, undergoes such modifications in its composition, that, by the increase of its watery parts, and the diminution of the globules, an anæmic condition is developed which, in its turn, may be the cause of the anomaly of which we are speaking. If, finally, it is affirmed that often the menses are suddenly suppressed in consequence of a too copious repast or some other hygienic fault, we must seek for the cause in a too great irritation of the nerves of the digestive apparatus, which occasions in

them, a considerable flux of blood and diminishing the hyperæmia of the organs of the pelvis, interrupts the menstrual flow. If the amenorrhœa, which is thus induced, has a long duration, it is, as we have several times experienced, only because the digestive difficulties produce durable alterations in the composition of the blood, and bring on a veritable chlorotic condition.

It results from all this that amenorrhœa, acute as well as chronic, has, so far as relates to its genesis, only a symptomatic importance.

But, in our opinion, the influence of this anomaly of menstruation upon the health of the woman who is affected by it has been, up to the present, greatly exaggerated. This comes in part from the time when the menstrual flux was considered as an excretion of injurious substances, which could not be interrupted without injury to the female system. The results of recent analyses have sufficiently demonstrated that the menstrual blood does not differ in its chemical and physical properties, in any way from normal blood, and that its exit from the vessels should not be considered as the action of the *vis medicatrix naturæ* of the ancients, but that it is owing to the congestion occasioned by the modifications which the ovaries undergo. If we adhere to this view, which is now sufficiently established, it is evident that the absence of the menstrual hæmorrhage cannot lead to bad results, except when the periodic congestions of the pelvic organs take place regularly, notwithstanding the amenorrhœa; for even when these congestions are not sufficient to bring on rupture of the capillaries of the mucous membrane, the hyperæmia, of which they are the cause, may occasion exudations, inflammatory accidents, as well as the formation of various pseudoplasmata in the uterus and its appendages from the fact that it has not been seasonably terminated by hæmorrhage.

We very well know that we shall meet with many objections, in limiting, contrary to most of our predecessors, the dangers of amenorrhœa within such narrow bounds, and in declaring that they are always local and only affecting the sexual apparatus; still, we will hope that the time is not far distant when the minute application of the means of diagnosis

which we can employ, and an impartial criticism of the accidents and phenomena which amenorrhœa offers, will cause the recognition that its importance for the system has been much exaggerated. We shall then be convinced that many of the symptoms attributed to the hæmorrhage have no relation to it except when they flow from the same source.

We think that here is the place to mention a curious phenomenon which sometimes accompanies amenorrhœa, the enigmatical nature of which has always attracted the attention of physicians. We refer to **vicarious menstruation,** the deviation of the courses. In running over works on our science, we find a considerable number of cases in which women, whose courses have been completely arrested, or were insufficient, presented at certain periodical epochs, a discharge of blood from other parts of the body, as the lungs, stomach, intestinal canal, the mucous membrane of the mouth, of the nose, the eyes, the ears, and from certain parts of the skin, etc. These hæmorrhages, by the simple fact of their periodicity, were considered as supplying the place of the menstrual flux, and the name was given to them of **supplementary menstruation.**

Although it is certain that many facts of this kind, related by old authors, are capable of another interpretation, and that still, in our days, many physicians wanting the necessary knowledge of pathological anatomy, or examining their patients in an insufficient manner, give too much importance to this deviation of the courses, still, a great number of these facts, guaranteed by men worthy of belief, demonstrate that the existence of this anomaly cannot be doubted.

From our individual experience in this matter and the more from an impartial criticism of the observations of others entitling us to judge respecting these matters, we think that these hæmorrhages, from organs independent of the genital apparatus, are always occasioned by a predisposition resulting from an anomaly in the structure of these organs. This anomaly consists principally in an abnormal vascularity of certain parts of the body, or in an unusual thinness and a great fragility of the vessels of these parts. We know that the periodic maturation of the ovules provokes in the majority of women, a general vascular excitement, which is characterized

by the general as well as local phenomena which we have already described. If, then, at this epoch, the circulation of the blood in the vessels is accelerated, if the more energetic action of the heart increases the pressure in them, it is clear that it will break a way exteriorly in the parts where the abnormal weakness of the vessels offers the least resistance; these will break, and there will be a more or less copious hæmorrhage. This, on the other hand, will have results analogous to those which are obtained when bleeding is practised before or during the menstruation. If this is so abundant as to cause the congestion of the sexual organs to cease entirely, there will be no sanguineous flow from the uterus; if, on the contrary, it is scanty, it may happen that the pressure of blood, although diminished, may still be capable of rupturing some capillaries of the uterine mucous membrane. The supplementary hæmorrhage is then accompanied by a slight sanguineous oozing in the genital parts. It may also occur that there is only an increase in the secretion of the mucous membrane. This, in our opinion, is the most simple and natural explanation of this singular anomaly. We only regret that it should be so rarely possible to make exact anatomical researches concerning the structure of the parts which are the seat of the hæmorrhage. Still, to give some support to our assertion, we should remember that the seat of these losses of blood is most frequently some mucous membrane whose great vascularity predisposes it to hæmorrhage, as for example, the mucous membrane of the bronchi, of the nose and the stomach. In other cases, the supplementary menstruation chooses, for place of exit, the telangiectasies of the skin, wounds, ulcers, etc., places where weakness and the superficial situation of the numerous vessels favor their rupture.

In general, the supplementary catamenial hæmorrhages have no great importance. Serious results are not observed except in cases where the loss of blood is very copious, as sometimes occurs in hæmoptysis and gastrorrhagia, or when it leads to functional disturbances in important organs. In the majority of the cases recorded, this anomaly at the end of a longer or shorter period has disappeared of itself, or by the use of proper remedies. Experience has shown that it has not

prevented conception, but it has however been observed that the supplementary catamenia have disappeared during pregnancy and lactation.

Besides the hæmorrhages which we have just described, there have been included in the category of **vicarious menstruation,** the hypersecretion of certain organs, such as the salivary glands, the intestinal, vaginal, uterine and other mucous membranes, observed at periodic epochs and accompanied by amenorrhœa. It should not be forgotten that in the majority of these patients, the symptoms of a very marked chlorosis could not be mistaken, and every one knows that in this disease, the increase of the watery parts of the blood and its unequal distribution through the vascular system, are often the cause of hypersecretions of various organs, among which those mentioned occupy the principal place. The periodic appearance of the hypersecretion is connected, it is true, with the menstrual work and with the congestion which accompanies it. In this point of view, there is, in effect, a relation between this phenomenon and menstruation. As for the leucorrhœa which often accompanies amenorrhœa, we refer to the chapter of this work which treats of that malady.

Treatment.—After having declared that amenorrhœa is nothing but a symptom of a general or local disease, affecting principally the genital parts, it is clear that we cannot expect a favorable and durable result except from treatment directed against the primary affection which is the cause of the amenorrhœa. In reviewing what we have said on etiology, it will not be difficult for the reader to find the chapters in which we have indicated the treatment of diseases which it is necessary here to take into consideration. For an exposition of the indications suggested by the morbid conditions of the blood and of the organs unconnected with the genital apparatus, which we have above stated to be sometimes the cause of the amenorrhœa, we refer to the treatises on internal pathology and therapeutics, as this question does not belong to our subject.

But as, doubtless, the treatment directed against the causes of the amenorrhœa is essentially seconded by the application of therapeutic measures destined to directly combat this grave

symptom, we will say something about **emmenagogues.** The first effects of all these are very similar; they occasion a flow of blood toward the uterus, which, united to the menstrual congestions, induces a state of engorgement of the capillaries of the mucous membrane so considerable that their walls not being able to resist, are ruptured, and a hæmorrhage takes place.

The action of emmenagogues is partly local and partly general. In the latter case, these remedies affect the sexual apparatus by acting upon the entire system.

Among the principal emmenagogues heat is the most energetic. It is applied either in the form of hip baths or in that of the hot uterine-douche. The latter is particularly proper to act with power, as well by the heat as by the energy of the stream directed upon the uterus. Its effects are seconded by fomentations upon the hypogastrium. When it is desired to produce a still greater irritation, some stimulant may be mingled with the injected liquid. We cannot too highly recommend, in this connection, the injections recommended by Ashwell, composed of a mixture of four parts of liquid ammonia and five hundred parts of warm milk, or simply a decoction of mustard flour. It is well to retain the liquid in the vagina for fifteen or twenty minutes by means of a sponge introduced into the vulva.

The injection of irritating substances into the cavity of the uterus, as has been proposed in various quarters, frequently occasions very painful uterine colics—sometimes even inflammation of the womb and its peritoneal envelope; for this reason we do not employ this powerful emmenagogue, unless in exceptional cases and always with the greatest prudence.

Finally, the injection of irritating medicaments into the rectum deserves to be noticed. The lavements recommended by Schoenlein, composed of fifty parts of aloes with three hundred parts of mucilage, several times administered, have shown us a surprising activity of action in cases where all other means had failed.

Latterly one of the most powerful of emmenagogues has been discovered in the application of five or six leeches upon the

vaginal portion of the uterus. These sanguineous emissions are especially favorable, when in consequence of a chronic stasis, or an engorgement of the uterine parenchyma, the circulation has there taken on serious alterations. If they are adopted at the period when various general phenomena indicate the presence of the menstrual congestion, it easily happens that the hæmorrhage which takes place from the bites of the leeches immediately changes into a bloody flow of several days' duration and is accompanied by great relief. The periodic return of this discharge will soon make it recognized that the courses are reëstablished. In all cases, the application of leeches upon the os tincæ is much better and surer than sanguineous emissions from the anus, the labia majora or the internal surface of the thighs, which were formerly resorted to, though at present we have no longer recourse to them except when the virginity of the patient renders the vagina inaccessible. [In one case of scanty menstruation (and pulmonary hæmorrhage, supposed from tuberculosis), the attempt to dilate a stricture of the cervix, and its final complete division with the knife, resulted in reëstablishing the accustomed quantity of the menses, the entire arrest of the pulmonary hæmorrhage, the sub-clavicular tenderness and dullness on percussion, and the general health of the patient, with no trace of phthisis remaining.]

We do not yet venture to decide whether the local application of the vapors of chloroform, very recently proposed, will acquire a real value as an emmenagogue. Still, the results which we have up to the present obtained are of a nature to encourage us in making further trial. We regard them as more efficacious than the use of electricity and galvanism, formerly so much vaunted, and from which we have never once seen a satisfactory result. [Simpson has proposed the injection of carbonic acid gas, which has had the effect of relieving the dysmenorrhœal pains. Lately, however, a case of immediate death has been reported from its use, when thrown into the cavity of the uterus.]

Among the local emmenagogues, we may place the irritation of the nerves of the breast by applying to the nipple of the patient our suction apparatus, which we have many times successively used to provoke premature delivery. The hyper-

æmia of the mammary glands, which this irritation occasions, seems sympathetically to spread also to the genital organs of the pelvis. The matter is too new to allow us to form a decisive judgment upon it; still we think we may consider that our little apparatus acts more surely than the sinapism and vesications upon the breasts, and even than blood-lettings from these organs.

Among the so-called **constitutional** emmenagogues, aloes, savine, ergot, myrrh, nitrate of potassa, madder, digitalis, borax, iodine and iron deserve to be mentioned. It is certain that many of these, though formerly considered as specifics, act but very indifferently. The preparations of iron, for example, do not exert a happy influence on amenorrhœa, except by combating the chlorosis or the anæmia which is the cause of it. Similarly the prolonged use of iodine improves the digestion, and thereby the composition of the blood which intimately depends upon it; perhaps, also, it has a favorable discutient effect upon certain organic diseases of the uterus and its appendages.

From our observations, which are quite numerous, few of the medicaments which we have mentioned, except aloes, savine and ergot, justly deserve the title of emmenagogues; for only these substances appear to us capable of determining the blood toward the organs of the pelvis. Still their action is certainly much inferior to that of the local irritants above mentioned. Hence we do not think that they alone can ever cure an inveterate amenorrhœa. We consider them but as adjuvants, and we always combine them with local means.

In closing, we will mention that too much prudence cannot be used in the employment of all the emmenagogues which we have enumerated. We advise that they be not resorted to so long as the amenorrhœa is accompanied by congestive or inflammatory phenomena in the pelvic organs. This warning will suffice us here, as the subject has been already considered in connection with the various diseases which may cause amenorrhœa.

As for the treatment of the supplementary menstruation, we are of the opinion of those who advise abstinence from all

therapeutical means in cases where this anomaly does not affect the health of the patient.

When the blood flows from a wound, an ulcer, a teleangiectasia, a fistula, etc., the anomaly of menstruation often disappears with the cure of these diseases. But we should add that this result, in consequence of the periodic hæmorrhages, is frequently very difficult to obtain, or at least is much retarded; it is sometimes impossible to regulate the menses when the diseased part is for a long time the seat of the supplementary flow of the menses.

When the hæmorrhage proceeds from an interior organ, such as the lungs, the stomach, the nasal mucous membrane, etc.; and when, in consequence, its seat is less accessible to our therapeutic means than the surface of the body; when the alterations of tissue which cause it cannot be exactly recognized, the physician will limit himself to moderating the congestion of these organs and favoring that of the genital parts. In this view he will employ with the necessary prudence some of the emmenagogues above enumerated. As, furthermore, the **vicarious menstruation** is generally much more copious than normal menstruation, the considerable losses of blood may soon bring on an anæmic state, during which the augmentation of the watery portions of the blood, and its great liquidity favor its extravasation. For this reason the physician should endeavor to improve the condition of the blood as well by a proper regimen as by tonic medicines. Here iron will be very useful.

In certain cases of supplementary menstruation, where the use of the most varied means has had no effect, the cure has sometimes taken place spontaneously in an entirely unexpected manner. In this relation conception and pregnancy appear to exert a very favorable influence.

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§ 6. *Of Menorrhagia—Too Abundant Menses.*

The various causes of menorrhagia may be divided into three principal groups. The first class comprises the anomalies of the blood which predispose in general to abundant extravasations; the second is constituted by the morbid conditions of the female organism, which determine an excessive menstrual congestion of the organs of the pelvis; and the third contains the affections of the sexual apparatus which occasion it, either by an excess in the development of the vessels of the uterine mucous membrane, or by the alterations of the texture of the latter, which in their turn favor the rupture of the superficial or more deeply seated vessels.

The first two categories comprise the general or local diseases, during the course of which there is a great excitement of the vascular system coexisting with a modification of the composition of the blood disposing to hæmorrhage. We will name the acute exanthemata (variola, rubeola, scarlatina) during which very copious sanguineous discharges from the genital parts are frequently observed. It is the same with typhus, cholera, and the period of the increase of certain acute inflammations, especially those of the lungs. Although experience has demonstrated that during the course of these diseases, especially when they determine a draining of the mass of the blood, the courses are often suppressed; still a great number of observations have proved that when the flow persists, it may become so copious that it completely exhausts the already feeble forces of the patient, and may even hasten a fatal termination. This is especially the case with exanthemata. We have often observed that the appearance of a very copious menstrual hæmorrhage during the course of these diseases, is almost always the precursor of a fatal dissolution of the blood. Sanguineous discharges from the skin, the nose, the rectum, etc., soon supervene, and death occurs sometimes even in a few hours after the startling cerebral symptoms, as coma, paralysis, etc., have

come to complete the picture presented by the rapid decomposition of the blood.

Certain chronic diseases of the blood may also be followed by an augmentation of the menstrual flux. In 1843, we had frequent opportunities to observe this in scorbutic women. The same fact is sometimes presented in anæmic or scorbutic patients; the abnormal liquidity of the blood favors the extravasation; it is easily understood that losses of blood can but aggravate the evil in such cases.

Another cause of menorrhagia should be sought for in various disturbances of the circulation; the most unfortunate are those which occasion a stasis of the blood in connection with the inferior vena cava, as for example, the insufficiency and the stenosis of the mitral valve, chronic emphysema, the pneumonic or tuberculous infiltration of the lungs, as well as considerable abdominal tumors, which, by compressing the ascending veins, impede the return of the blood toward the heart and provoke a chronic stasis in the uterine walls. The vessels of the mucous membrane, gorged with blood, must then burst and necessarily give rise to violent hæmorrhages.

Certain local affections of the womb may also be the source of hæmorrhages. We will only cite the acute inflammations of this organ. Although the menstrual flux may generally be suppressed more or less abruptly by an acute metritis, cases are, however, not rare where the contrary is observed: the uterine inflammation is accompanied by a considerable loss of blood; and thence the name of hæmorrhagic metritis is given to this variety.

When the acute hyperæmia of the womb often returns, or when from the continued difficulties of the circulation it passes into the condition of a chronic stasis, a serous infiltration of the parenchyma frequently results therefrom, which is recognized during life by the relaxation and the tumefaction which affect the portions of the organ accessible to the touch. This atonic state of the uterus exists by itself or is complicated with other anomalies such as descent and prolapsus, inflexion, fibrous tumors, etc. It always predisposes to numerous vascular ruptures, both from the congested state of the organ and from the slight resistance of the capillaries of the mucous mem-

brane. Thus, it plays an important part in the etiology of menorrhagia.

Any unaccustomed or excessive sexual irritation of the genital parts may also occasion abundant hæmorrhages. It is often the only cause of this anomaly in young females and courtesans.

We have still to mention the uterine diseases which cause a more or less profound loss of substance. Thus, menorrhagias often accompany granular, fungous, phagedenic and cancerous ulcers of the womb. In the last two forms this symptom is rarely absent.

Finally, we have yet to note the various pseudoplasmata located in the uterine walls: fibrous bodies, fibrous and mucous polypi, cauliflower vegetations, etc. All these induce a hyperæmic condition of the organ, and are almost always the cause of ruptures of the congested mucous membrane, and consequently of frequent hæmorrhages.

After what we have said, it may be understood that menorrhagia, as well as amenorrhœa, cannot be regarded otherwise than as a symptom of the most varied affections, both general and local; and that without at all forgetting its important relations to the entire economy, the physician should always direct his attention to the primary evil which produces the hæmorrhage. As we have already treated of the majority of these causes and shall return to them in the proper time and place, we think it useless to amplify upon the diagnosis, prognosis and treatment of this anomaly.

§ 7. *Dysmenorrhœa.*

Menstruation, which in the condition of perfect health is the cause of no notable difficulty, may sometimes be accompanied at its appearance and throughout its entire duration by more or less troublesome or painful accidents. This anomaly is called **dysmenorrhœa.**

We have already designated a great number of uterine diseases which may give rise to the phenomena of dysmenorrhœa. So, to avoid repetitions, we refer our readers to what we have already said upon anomalies of conformation, inflexions, con-

tractions and obliterations of the womb; and to the chapters which treat of deviations, fibroids, polypi, cancer, tubercles, and inflammations of this organ. This form of dysmenorrhœa, which has its origin in anatomical and palpable alterations of the uterus, is ordinarily designated by the name of **organic dysmenorrhœa**, in distinction to that in which the most minute examination cannot recognize any trace of a structural defect. This latter form presents two varieties which are distinguished in that sometimes the morbid phenomena ought to be attributed simply to an abnormal irritation of the sensitive nerves of the sexual apparatus, while sometimes they are accompanied by symptoms of congestion. We designate these two varieties of dysmenorrhœa under the names of **nervous** and **congestive.**

A.—*Of Nervous Dysmenorrhœa.*

Symptoms.—Women affected with this anomaly ordinarily present more or less numerous phenomena of an excessive irritation of the entire nervous system, or of some portion of it. They are almost all hysterical, and on nearer observation, it is not difficult to observe in them one or another of the symptoms of this disease. However, we are much deceived in thinking that this form of dysmenorrhœa is only met with in delicate, thin, and anæmic subjects. Every practitioner has had opportunity to observe this nervous dysmenorrhœa in robust and plethoric women of good constitution.

The symptoms are ordinarily as follows: Some days before the appearance of the menses, the patients evince a surprisingly bad humor; they are downcast and capricious, avoiding company, seeking solitude, and complaining of a general disturbance which they cannot clearly define. Afterward, simultaneously with various digestive difficulties, such as eructations, flatulences, constipation, etc., they complain of a very troublesome headache, often limited to one or the other side of the head, to which is often added visual difficulties, particularly photophobia, accompanied by a hypersecretion of the lachrymal glands. By degrees painful sensations in the organs of the pelvis are perceived, such as draggings, shooting pains, which are limited to the uterine region, or radiate toward the thighs,

the seat and the loins. Very often they also extend to the breasts, although with less intensity. To these accidents a convulsive constriction of the vagina is frequently added with a very disagreeable pruritus of the vulva, more frequently still a vesical and rectal tenesmus. The urine is scanty, straw-yellow, almost always alkaline, and contains, at the end of a certain period, a great number of fungi and vibriones. All these symptoms gradually increase, and attain their maximum of intensity immediately before the appearance of the menstrual flux; they generally moderate quite rapidly so soon as the flow is well established. There are even cases where patients who just before were suffering intensely, are perfectly well some hours after the commencement of the menses, and apply themselves immediately to attending to their affairs, though for some days formerly this had been completely impossible. With the majority of patients, these attacks are repeated at each period with more or less intensity. Sometimes, however, they suddenly disappear, not again to return, without our being able to discover the cause of the cure.

We will further add, that in this form of dysmenorrhœa the exploration of the uterus and its appendages does not disclose any anatomical alteration. Still it should not be forgotten that when there are organic defects in the womb, such as those previously referred to, the catamenial flux is often preceded by the same symptoms which have just been described.

Etiology.—The causes of this anomaly are still imperfectly known. All that can be said respecting them is more or less hypothetical. It is possible that the abnormal irritation of the sensitive nerves of the sexual apparatus originates in the menstrual nisus of the ovaries. It is quite as probable that when a nervous irritability already exists in a very high degree, the uterine hyperæmia induced by the periodic maturation of the ovules, is nothing more than the occasion of the accidents which we have mentioned, just as it is not improbable that an excessive nisus of the uterine vessels prevents a regular flow at the ordinary period, of the blood with which they are gorged, and may thus become the cause of a prolonged pressure upon the nervous filaments. It will be objected that this last accident may with more justice be considered as one of the causes of

congestive dysmenorrhœa ; we do not deny this, but we would have it remarked that this division of dysmenorrhœa into nervous and congestive is founded only upon the symptoms perceptible at the bedside of the patient, and that consequently where the phenomena of congestion escape clinical observation, the simple supposition of the presence of this congestion as the cause of the nervous accidents does not at all authorize the rejection of this division. Finally, in an etiological point of view, the following circumstance also deserves consideration, that the abnormal nervous irritation of the uterus may give rise to reflex movements of the organ and to a convulsive contraction of the cavity of the neck. Hence the escape of the blood which is already effused, is impeded by an obstacle which irritates in its turn the motor nerves of the body and fundus of the uterus, and thus provokes painful contractions. This is what to us appears particularly to take place in cases where, after intense expulsive pains, lasting perhaps several hours, the patients suddenly eject a considerable quantity of blood, partly liquid and partly coagulated, and find instantaneous relief.

Prognosis.—Although in nervous dysmenorrhœa a fatal termination is never to be feared, this disease may have consequences sufficiently serious and of a very diverse character. We have said that it frequently constitutes one of the symptoms of hysteria ; but it is equally true that the reiterated irritation of the sensitive nervous filaments of the sexual apparatus may also be the cause of hysteria, especially if a predisposition to this affection exists in the patient. This takes place either in a direct and immediate manner, or mediately in the course of digestive difficulties, due to the general irritation. These troubles disturb the functions of assimilation, and induce a defective nutrition of the whole nervous system, in the course of which the irritability of the latter is excessively augmented ; it is this which constitutes hysteria.

Nervous dysmenorrhœa is accused of being the cause of various alterations in the structure of the uterus which may follow it. But it should not be forgotten that the organic affection which is subsequently developed may have existed previously in an incipient stage, and have escaped the exploration. It may itself have been the origin of the dysmenorrhœa,

for it is not always possible, with certainty, to distinguish causes from effects; on the other hand, it cannot be denied that the intense and reiterated irritation of the nerves of the sexual apparatus may provoke the congestion of these parts, and thereby become the origin of many affections, acute as well as chronic. Thus it is not rare to see the nervous form of this disease pass by degrees into the congestive form, or even result in acute or chronic metritis, hypersecretion of the uterine and vaginal mucous membrane, inflammations of the ovaries, etc. We cannot decide if the deeper alterations of texture, fibroids, polypi, cancer, etc., may gradually be developed in consequence of nervous dysmenorrhæa, for it can never be ascertained with certainty whether the first beginnings of these affections do not coincide with those of the dysmenorrhœa.

As to the cure of this anomaly, it is always very doubtful. If there are cases where the art of the physician may in a little time become triumphant, it is still much more frequent to see all efforts remain powerless, when the change of life will alone free the patients from their sufferings.

Treatment.—From what we have said upon the nature of nervous dysmenorrhœa, the conclusion might be drawn *a priori* that narcotics ought to play the first part in the treatment of this disease, and, in fact, the use, both internally and locally, of preparations of opium and belladonna renders the most important service. For topical application we particularly recommend opiated lavements, suppositories of the extract of belladonna, frictions of the ointment of chloroform or of any other narcotic upon the sacrum and hypogastrium; finally, medicated pessaries, composed of wax, lard and the extract of morphine or belladonna, which are to be introduced into the vagina, as we have said in our general remarks upon uterine diseases. We have also obtained excellent results from the local application of the vapors of chloroform in the vagina; sometimes a few minutes only were requisite to disperse the pains completely. This treatment is seconded by the use of warm baths, either entire or partial, and of warm intra-vaginal injections.

During the intervals of the paroxysms the physician ought to act upon the blood by a proper regimen; he will order pre-

parations of iron, salt water baths, or chalybeate mineral waters. Experience has proved that in many cases the prolonged use of medicines, called anti-hysterical, such as castor, assafœtida, musk, amber, etc., have had happy results. Finally, we will further mention that in some very obstinate cases we have obtained a radical cure by persistent cold water treatment. [The use of morphia endermically and introduced by "acupuncture" into the muscular tissue over the spine, in the neighborhood of the origin of the sacral nerves, has latterly been recommended. We have no experience of its effects.]

B.—*Of Congestive Dysmenorrhœa.*

Symptoms.—This form is characterized essentially by the phenomena of congestion in the organs of the pelvis. One or more days before the return of the courses, the patients complain of a sensation of fullness, weight and heat in the pelvis, compressive pains about the sacrum, a frequent desire to urinate and to go to school. Afterward a more or less marked febrile excitation is added to these symptoms. The signs of cerebral congestion rarely fail; the face is red, the eye has an unnatural brillancy, the carotids pulsate forcibly, the forehead and occiput are the seat of an intense cephalalgia. Frequently also the abnormal activity of the vascular system gives rise to transient or even continued palpitations, and to abundant perspirations. There is rarely delirium, convulsions or coma.

On digital exploration the temperature of the vagina is found elevated; the inguinal region and uterus painful; the latter is sometimes much enlarged and tumefied; and this tumefaction ordinarily disappears a little time after the commencement of the discharge; it is strongly marked when the congestive dysmenorrhœa is complicated with a chronic engorgement of the organ. In these cases the patients themselves say that the tumor which they perceive through the abdominal walls increases in size three or four days before each period. The hæmorrhage is at the commencement scanty, being sometimes limited to a few drops of blood. At the end of two or three days, sometimes much later, the expulsive pains diminish in intensity, or completely cease; at the same time the discharge

becomes more abundant, and it is not uncommon for it to become a real menorrhagia, which lasts six or eight days. In such cases the blood often coagulates in clots of considerable size.

We ought also to mention the cases in which patients, while presenting the symptoms of congestive dysmenorrhœa, pass membranous fragments of variable size. A minute examination of these membranes, which we have made at various times, in concert with Kölliker, has convinced us that they were nothing else than the hypertrophied mucous membrane peeled off from the internal surface of the uterus. This is proved incontrovertibly by the fact that we have always found in it numerous rudiments of the utricular glands. The size of these membranes is often very variable in the same woman; sometimes they do not exceed the size of a five cent piece, while at the subsequent menstruation they present an extent of two to three square inches. We have treated women with whom we have regularly observed the presence of these membranes at each period, while in others they are not perceived oftener than every two or three months; sometimes indeed this phenomenon is only seen once. Their expulsion is always preceded by symptoms of dysmenorrhœa which cease immediately afterward. Two of our patients could always say with perfect certainty, one or two weeks before the return of the courses, whether or not they would pass membranes. Every time that this was the case they experienced for one or two weeks previously, a sharp, pricking pain in the umbilical region.

The formation of these membranes, the histologic texture of which offers a great analogy with the decidua which is formed after conception, is occasioned without doubt by a considerable and often repeated hyperæmia of the walls of the uterus, which is followed by an excess in the development of the mucous membrane. The detachment of the hypertrophied membrane takes place either in consequence of the accumulation of liquid exuded between it and the uterine wall, or mechanically by the contractions of the uterine tissue which precede the menstrual hæmorrhage. Let us add, finally, that we remember but the single case where a woman affected with membranous dysmenorrhœa presented no appreciable alteration of

the womb. In all the other cases either the uterine walls were the seat of a chronic engorgement, or else there existed a flexion, fibroids or polypi.

Etiology.—The majority of the authors who have written upon this subject indicate a plethoric constitution as the most frequent cause of congestive dysmenorrhœa. We have never been able to confirm the justice of this assertion. Every time that we have had to treat patients who were young, robust, and of a sanguine temperament, we have always been able to find some other probable or certain cause of the malady. We have even found ourselves compelled to go further and to claim that anæmia, with the unequal distribution of the blood which characterizes it, constitutes one of the most striking and most frequent causes of the disease under consideration. It is true, and we do not at all deny, that the symptoms of anæmia often do not appear except after the dysmenorrhœa. But numerous observations have compelled us to recognize that quite as often they precede it and that the anæmia must be cured before the dysmenorrhœa can be relieved.

Setting aside all the organic affections of the uterus which tend to congest this organ, and which, in consequence, are also capable of provoking or of maintaining congestive dysmenorrhœa, we will further cite, in an etiologic point of view, the irritation of the genital apparatus which depends on the sexual functions. Thus dysmenorrhœa is very often observed with those women whose sexual instincts cannot, for some cause, be sufficiently satisfied. Old maids and young widows furnish a large contingent to this class of patients; the latter especially being compelled to suddenly renounce the pleasures to which they had been accustomed, frequently suffer from congestions about the genital organs, which they often increase by satisfying against nature the desires which possess them. The form of dysmenorrhœa which the ancients called **colica scortorum,** and which is met with among the courtesans, enters into the same category. It is due, without doubt, solely to the immoderate and too frequent irritation of the genital system.

If attention is paid to a well established observation, namely, that the rupture of the Graafian vesicles seated in the deeper layers of tissue of the ovaries, ordinarily requires a more con-

siderable hyperæmia of these organs, and a longer time than the rupture of vesicles superficially situated, and that the menstrual congestion is thus kept up for a longer time, we shall not be accused of imprudence if we express the opinion that the dysmenorrhœa may also have for its cause the habitual maturation of ovules deeply situated and the prolonged and abnormal hyperæmia demanded by the rupture of the vesicles which contain them.

Finally, we cannot omit to notice that certain affections of more distant organs, which cause various troubles in the circulation of the vessels of the abdomen and pelvis may also induce engorgement of the pelvic organs and especially of the uterus. We will only mention the affections of the valves of the heart, the impermeability of the pulmonary parenchyma in consequence of an engorgement, abdominal tumors, etc.

Progress and Diagnosis.—The congestive form of dysmenorrhœa, existing by itself without organic alteration of the uterus and its appendages generally allows a more favorable prognosis than the nervous form. Here our art is less often powerless, the disease also is cured spontaneously much more frequently than nervous dysmenorrhœa, which, as we have said, is usually more obstinate. The patient may at least always be relieved by a proper regimen, and suitable remedies. When the disease is left to itself, it may lead on to unfortunate results, while the congestion may easily produce an exudation and thereby alterations in the structure of the uterus and ovary. According to our experience, the least favorable cases are those where the dysmenorrhœa is accompanied with the expulsion of the membranes which we have described, and where the malady is due partly, perhaps, to the presence of these membranes. At least, in such like cases, we have never obtained a complete cure; others claim to have been more successful. It is scarcely necessary to add, that where the congestive dysmenorrhœa is connected with other affections of the genital organs, the prognosis depends essentially upon the seriousness of the latter.

Treatment.—The principal condition for the cure is always the diminution of the abnormal congestion of the pelvic organs. We shall secure this result by administering in the intervals of

the period, mild purgatives, or by the prolonged use of saline mineral waters, such as those of Carlsbad, Marienbad, Kissengen, Hambourg, etc., and especially by repeated local blood-lettings, either by leeches applied upon the os tincæ, or what is perhaps better, by scarifications, repeated at short intervals. The latter do very good service, even in anæmic patients; they instantly disgorge the womb without producing a too considerable loss of blood, which, in such cases, would be dangerous. Although in general it is considered that the prolonged use of iron occasions a congestion of the organs of the pelvis, we can however certify that we have never observed the like after the use of preparations of iron, chalybeate waters, or baths, etc. We possess, on the contrary, a large number of observations, proving that anæmic women, affected with congestive dysmenorrhæa, have been completely restored by the use of iron alone. When there exists already a chronic engorgement, or induration of the uterine tissue, we recommend, together with local blood-letting and derivatives upon the intestinal canal, as we have just indicated, intra-vaginal injections, and partial or entire warm baths, containing a certain quantity of sea water.

The painful paroxysms generally cease soon after the application of leeches upon the os tincæ, from the effects of a rapidly acting purgative, a tepid bath, or, when it is judged necessary, from a narcotic taken internally, or as a lavement. We have never been forced to have recourse to bleeding from the arm, recommended by several of our confrères.

Among the remedies against hypertrophy, the detachment and the expulsion of the mucous membrane, are cauterization of the internal surface of the uterus by means of solid nitrate of silver, as well as the intra-uterine injection of liquid astringents. We have frequently employed these means during entire months and have never seen relief, but on the contrary, an increase of the phenomena of congestion. Hence we now limit ourselves solely to the use of local antiphlogistics, which, if they do no good, never at least do any harm.

Bibliography.—Besides the chapters relative to our subject in treatises and manuals on gynecology, the following among recent works may be read: Oldham, Membranous Dysmenorrhœa. Lond. Gaz., Dec. 1846.—Simpson, Dilatation and Incision of the cervix Uteri in cases of Obstructive Dysmenorrhœa.

Monthly Journ. Aug. 1844.—Simpson, On the Nature of the Membrane occasionally expelled in Dysmenorrhœa. Month. Journ., Sept. 1846.—Oldham, Lond. Gaz., Nov. 1846.—Bennet and Aran, Rem. sur la dilat. du col de l'utérus, etc. Union méd. 1850. No. 53.—Hassing, De colica scortorum. Diss. Havniæ. 1848.—Hardy, Dubl. Quart. Journ. Nov. 1853.—Albers, Vienna. Wochenschrift. 1853. No. 51.—Charpignon, Gaz. des Hôp. 1854. No. 29.—Faure, Mém. sur la dysménorrhée. Gaz des Hôp. 1854. No. 49.—Trousseau, Sur la dysménorrhée. Gaz. des Hôp. 1854. No. 49.

Art. XIII.—Hysteralgia.

Gooch calls hysteralgia a permanent dysmenorrhœa, and he seems to us to be correct, as the majority of the symptoms of dysmenorrhœa also belong to this disease, with the only difference that the characteristic pain of hysteralgia is not connected with the epochs of menstruation but troubles the patient in an almost continuous manner, most often with scarcely an hour's interruption. Further, it is not at all an expulsive pain, and it is almost always located in the inferior portion of the womb.

Hysteralgia is quite a rare disease; we have up to the present seen it but three times. It occurred in women from 35 to 45 years of age; two of them, some years married, had never conceived; the third, whose husband was much older, and could not accord to her all that she desired, had had a child. None of our three patients could indicate a certain cause of the disease by which its poignant and almost continuous pains had rendered life insupportable, with one for sixteen years, with the second for nine, and with the third during three years. They were all quite stout, but still presented all the symptoms of anæmia from the commencement; one of them had all the signs of hysteria; the other two presented only some slightly marked symptoms of this neurosis. The statements of these patients as to the locality and nature of their pain were almost absolutely the same. They felt the pain deep in the pelvis. It was sometimes a very painful sensation of smarting, which they compared to that which would be caused by a hot coal; sometimes sharp prickings, which shot through the pelvis, toward the thighs, along the sciatic nerves, or toward the inguinal regions, in the direction of the anterior and superior iliac spinous process. In these three cases the pain

remained limited principally to the right half of the pelvis; it did not show itself in the left until it had attained a very great intensity on the other side. The least movement of the body sensibly augmented it; a little motion, such as that from walking, or from riding in a carriage, rendered it very insupportable. With two of the patients sleep was ordinarily once interrupted, sometimes oftener, by an excessively painful sensation, which they called convulsive, and which starting from the pelvis, shook the whole body like an electric shock; this symptom always appeared in the morning after tranquil and prolonged sleep. Rest seemed to exasperate the pain, so that the patients could not sit long upon a stuffed seat. When lying or sitting, they found certain relief from holding the limbs far apart.

Menstruation was regular, still it was not in any of the three patients very abundant, and never lasted more than six days. One of them experienced, three or four days before the return of the menses, an increase of pains; in the other two this influence of the menstruation was not remarked. During the course of the disease no febrile excitement was evinced which could be connected with the uterine affection.

On palpation, the inguinal and uterine regions were sensitive, without, however, any notable pain being experienced from even a quite strong pressure. But the vaginal touch was so much the more painful to the patients, and the very idea of the pains which accompanied it, filled them with terror. We were struck with the abnormal contraction of the vagina and of the unaccustomed dryness of its walls, of which the patients themselves complained. In all the three we found the os tincæ very low; except a slight tumefaction, it did not present anything remarkable; in one case the body of the uterus was slightly augmented in size, in another it was a little bent forward, in the third it showed nothing abnormal. At the contact of the finger with the inferior portion of the uterus, the patients complained of a very violent pain, which attained its maximum at the touch of the part situated to the right of the os tincæ. Exploration by the speculum was very painful; it did not disclose any sensible alteration; the introduction of the sound did not evince any marked modification in the dimensions

of the uterine cavity ; at the instant when the extremity of the instrument passed the internal orifice, the patients felt an excessively intense pain. We will add that in all the cases which we have observed, the functions of the bladder and rectum did not undergo any kind of alteration.

We think that this affection ought to be considered as a veritable neuralgia of the uterus, the immediate cause of which is not yet known. The pain which characterizes hysteralgia is distinguished from those induced by organic affections of the uterine parenchyma, by its long duration, by the absence of intervals completely free from pain, by its fixedness, its localization in one determined point, which always appears to be the lower portion of the womb, and finally, by its non-expulsive nature. Sometimes the abnormal irritability of the sensitive fibres of the uterus and its appendages, seems to be in relation with the hyperæmic condition of the organs of the pelvis, for it is not rare that a notable augmentation is experienced at the epoch of the menstrual congestion. We have also many times observed, with one of our patients, that the most violent paroxysms were preceded by a considerable and even painful intumescence of the breasts. Finally, the beneficial result often obtained from local blood-lettings speaks in favor of the opinion which we have expressed. Some physicians—Ashwell, for example—have even gone further, and have declared without reserve that hysteria was a chronic or subacute inflammation of the uterus. Dewees says that an attentive examination will always disclose more serious organic alterations in the womb than would have been supposed. From our observations, which indeed are not numerous, we cannot agree with this opinion, for the slight intumescence of the os tincæ, the insignificant flexion, and the swelling of the body of the uterus which we found in two of our patients, did not at all explain the violence and obstinacy of the pain ; in the third, the most minute exploration did not disclose the slightest alteration, so that, at present, we are constrained to regard this affection as a veritable neuralgia, entirely independent of the alterations of the parenchyma, a neuralgia which, as Gooch has already observed, has its analogy in the **mastodynia.**

Progress.—As to the progress of hysteralgia, we have

already said that it ordinarily lasts for years. According to some authors, it may disappear spontaneously, after having resisted the most varied therapeutic means. This fortunate termination was observed either at the change of life, or after the patients had sufficiently satisfied their sexual instincts. We have ourselves had an opportunity to recognize the benefi cial action of coitus in one of our patients who had suffered therefrom for three years. At 37 years of age she was a widow; six months after the death of her husband, the hysteralgia declared itself; at forty she remarried, and three months after she was entirely cured. She declared herself that from the first time she essayed coition she was relieved from her suffering.

When nature does not interfere, hysteralgia is one of the most obstinate ills that our art has to combat. Of our three patients, only the one of whom we are speaking was cured. The second, whom Kilian at Bonn, Fischer at Cologne, Lange at Heidelberg, and Pfeufer at Munich, had submitted to the most varied and most violent treatment, has suffered for sixteen years, and did not even obtain any relief. It was the same with the third, whom we have treated for four years.

The small number of our observations does not enable us to decide whether, as has been declared, hysteralgia may finally produce alterations in the texture of the uterus, and particularly cancerous inflammations of this organ. Still we have some doubts on this point. Are the physicians who say they have observed these direful results, certainly convinced that in all these cases, the pains of which the patients complained were truly hysteralgic, and were not caused by the preëxisting presence of an organic affection of the uterus and its appendages? It seems to us, that generally many physicians are far too generous with their diagnosis of hysteralgia; and we think it is this which explains why, at the autopsy of these patients, they have so often found fibrous tumors, cancerous infiltrations of the uterine parenchyma, degenerations of the ovaries, etc.

Treatment.—For the treatment of hysteralgia, we have almost entirely exhausted all the series of medicaments recommended in the books of modern authors. Narcotics in large doses, the derivatives on the intestinal canal, iron, mercurials,

quinine, arsenic, and many other means, we have tried without the least result. Topical treatment has been no more useful; we have omitted neither deep scarifications of the os tincæ, so much recommended, nor the application of leeches, the dilatation of the cervical canal by means of sounds and prepared sponge, the introduction of narcotic unguents or pieces of ice into the vagina, lavements of the tincture of opium, and the extract of belladonna, etc., etc., but all without success. Once only we procured some relief to a patient by the local application of the fumes of chloroform, but this good effect was not of long duration.

After what we have said, it may be seen that the treatment of hysteralgia is one of the most ungrateful tasks of the practitioner, and one of the severest trials of his patience.

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PART SECOND.

PATHOLOGY AND THERAPEUTICS OF THE DISEASES OF THE LIGAMENTS OF THE UTERUS.

ART. I.—DISEASES OF THE LIGAMENTS OF THE UTERUS.

§ 1.—*Diseases of the Round Ligaments.*

MANUALS on gynecology contain very defective descriptions of the diseases of the round ligaments of the uterus. To Rau belongs the merit of having called the attention of the medical public to this point of pathology by a very careful compilation of the facts published up to our time.[1] It is from his work that we borrow what follows.

A. Among the **anomalies** of the round ligaments, most frequently met with is that in which one is **shorter** than the other. This anomaly is not without importance, for the uterus is thereby drawn out of the axis of the body, toward the side corresponding to the shorter ligament, and the result is either a deviation or a lateral flexion. The **complete absence** of the round ligaments has not been observed apart from that of the entire uterus. We have ourselves observed the absence of one of the ligaments in a case of unicorn uterus.

BIBLIOGRAPHY.—For bibliography, see, according to RAU, MEISSNER'S Frauenzimmerkrankheiten. Bd. i.—MECKREN-FREMERY, De hydrope ligamentorum uteri. Traject. ad Rhen. 1819.—CRUVEILHIER, Anat. path. Livr. xxxiv., p. 6.—TIEDEMANN, Ueber die stellvertretende Menstruation. Würzburg, 1842.—LUCAS, Neue Zeitschrift f. Geburtskunde. Bd. vii., p. 306.—ENGEL, De utero deficiente. Regiomonti, 1781.

B. Ruysch[2] described, under the name of **excess of develop-**

[1] Neue Zeitschr. für Geburtskunde. Bd. xxviii., p. 289 *et seq.*

[2] Opera omnia. Amst., 1737, p. 82.

ment, a very curious deformity; the uterus deviated to the right presents on the same side a second round ligament inserted upon the neck.

C. Petche[1] mentions a case of **rupture of the round ligament,** and in this case the latter would have been visible through the anus. However, we may justly have some doubt as to the accuracy of this observation.

D. The **hypertrophy** of the two ligaments constantly accompanies a normal pregnancy, while, as we have ourselves had an opportunity to determine, in the case of a bicorned uterus, biparted or bilocular, the ligament corresponding to the side on which was the pregnancy, was alone hypertrophied.[2] Wenzel, Boivin and Dugès[3] have, moreover, observed a considerable hypertrophy of the round ligaments accompanied by a dilatation of their vessels, resulting from chronic engorgement of the uterus, fibrous bodies, ovarian tumors, etc.

E. No observation has determined an **atrophy** of these organs.

F. **Hyperæmia** of the round ligaments has been several times recognized at the autopsy of women dying during the menstrual periods. We have ourselves seen many cases. We have even many times observed them in consequence of trouble in the circulation of the inferior vena cava. Aetius,[4] under the name of **Hernia varicosa mulierum,** describes a dilatation of the veins which is sometimes observed, and Boivin and Dugès portray in their atlas, after Cloquet, a varicocele of the subpubian cords (plate 32, fig. 3), and add that the numerous sinuosities of the veins completely fill the inguinal canal and resemble a bilateral inguinal hernia. Cruveilhier[5] and Teale[6] also describe similar cases.

G. It is possible that labor may be followed by the rupture of vessels with subsequent **hæmorrhages** in the interior of the parenchyma of the round ligaments, or even exteriorly

[1] Haller, Disp. anat. elect., vol. i. Goetting, 1746.
[2] Wenzel, Die Krankheiten des Uterus. Mainz, 1816.
[3] Traité prat. des maladies de l'utérus. Paris, 1833.
[4] Tetrabiblos per J. Cornarium apud Froben. Francf. 1549.
[5] Froriep's Notizen. Bd. xix., p. 349.
[6] Practic. Treatise on Abdom. Hernia.

through the inguinal canal. Korb[1] has published a case of this sort; however, the autopsy was not made; and the proof is thus wanting that the tumor filled with blood, which was formed in the right pubic region, and in the labium majus, was really caused by a hæmorrhage of the round ligament.

H. The **inflammation of the round ligament** is, according to La Motte, Burns, Lisfranc and Portal, the cause of pains which are sometimes noticed with women in the inguinal region and the upper part of the thighs, during pregnancy, labor and subsequent to parturition. But here also this assertion is without anatomical proof. Still, we remember many cases of women who have died after metritis or puerperal peritonitis, with whom one or both of the round ligaments were notably hypertrophied and presented a lively red color with a serous infiltration. We have also seen some cases in which the veins of the round ligament corresponding to the point of the adhesion of the placenta, were filled with a sanious pus. Finally, we are disposed to attribute to an inflammation which, proceeding from the uterus, had invaded the round ligament, the sometimes very intense pain which has frequently been noted in the inguinal region in the course of a chronic metritis.

J. F. A. Walter[2] and Voigtel[3] mention cases of **ossification** of the round ligaments, and Boivin and Dugès have found there an osseous concretion in a single case.

K. Cases of **hydrocele of the round ligament** are found described by Oehme,[4] Desault,[5] Lallemand,[6] Scarpa,[7] Polant,[8] Sacchi,[9] and others. Bends[10] distinguishes three varieties of watery tumors of the external female genital organs, which in a pathological and anatomical point of view correspond to hydro-

[1] Richter's chirurg. Bibliothek, 1785. London, 1846, in-8. Bd. vii., p. 119.
[2] Anat. Museum. Berlin, 1796.
[3] Handbuch der Path. Anat. Halle, 1805.
[4] De morbis recens natorum chirurgicis, 1773.
[5] Journal de chirurgie. Paris, 1791, ii.
[6] Dict. des scienc. méd. Paris, 1819, p. 193.
[7] Opusc. di chirurgia. Pavia, 1825. Vol. i.
[8] Prager Vierteljahrschrift, 1845. Bd. i., S. 125.
[9] Œsterr. Jahrbücher, 1833. Bd. xiv.
[10] Hosp Meddelelser. Bd. v, Heft iii., 1853.

cele in man. These are a **diffuse or œdematous hydrocele,** the seat of which is in the inguinal canal, and which can only be a serous infiltration of the cellular tissue of the round ligaments, while **congenital or peritoneal hydrocele** is formed by a collection of liquid in the canal of Nuck. Finally, the **encysted hydrocele** in which the liquid is contained in a sac entirely closed, which is sometimes a simple cyst of recent formation; and sometimes is the result of a prolongation of the peritoneum and shows itself in the form of a tumor in the inguinal canal in the pubic region or in the labia majora.

L. Finally, Delmanzo[1] describes under the name of **cramp of the round ligament,** an affection observed in the clinique of Tübingen, in 1805. A young girl of 19 years, affected with epilepsy, sometimes felt very sharp sudden pains in the right inguinal region. At the same time it seemed to her that something came out of the inguinal ring. During these attacks it was observed that the vaginal portion of the uterus was always deviated toward the left, to return to its normal position as soon as the attack was over. The presence of muscular fibres which have been discovered in the round ligament suggests the possibility of the existence of cramps in these organs. Still, the case of which we are speaking is entirely isolated and can consequently have no practical value.

Art. II.—Diseases of the Folds of the Peritoneum surrounding the Womb.

The broad ligaments and the vesico- and recto-uterine ligaments being simply portions of the peritoneum, are liable to all the diseases observed in this serous membrane. In the first rank we observe the inflammations; then we have here, as in other portions of the peritoneum, tuberculous and cancerous deposits. The vessels located between the two folds of the broad ligaments sometimes occasion considerable bloody effusions, and the organ of Rosenmuller, situated in the same locality, is sometimes the seat of cysts; still we also see neoplasmata

[1] Observ. in morbos quosdam lig. uteri rotundi acutos. Tübing, 1811.

developed outside of this latter organ, and the most frequent among them are cysts and fibrous tumors.

We may be permitted in what follows to treat in a very few words of the affections which we have mentioned.

§ 1. *Perimetritis.*

The inflammation of the portion of the peritoneum which invests the uterus and the neighboring organs, is most frequently a puerperal disease. It is, however, observed apart from the parturient periods; but it is then ordinarily a secondary affection, accompanying an acute or chronic inflammation of the uterus or the ovaries or one of the various neoplasmata which are developed in these organs, as fibrous bodies, cancers, cysts, etc.

The inflammation does not ordinarily extend beyond the portions of the peritoneum nearest to the organ primarily affected, and the resulting plastic exudation forms numerous adherences, not only between the uterus, the ovaries, the tubes, the neighboring organs, and the abdominal walls, but also with the portions nearest to the intestinal canal. Sometimes, but more rarely, the quantity of the exudation is more considerable; it is then absorbed little by little, or else undergoes a purulent decomposition, and the pus makes an issue through the walls of the rectum, vagina, abdomen, etc., and occasions an obstinate suppuration, which consumes the forces of the patient, or produces death in consequence of a purulent infection. Besides the febrile excitation which is rarely absent in the commencement, the symptoms which accompany this affection are local pain, often very acute, and the presence of the exudation, which, when the effusion has been great, is recognizable by percussion. The location of this effusion sensibly modifies the groups of symptoms; for when it is between the uterus and the bladder, the functions of this latter organ are ordinarily disturbed, while if it is posterior to the uterus, it is frequently the cause of an obstinate constipation accompanied by a painful tenesmus.

When the mass of the exudation is considerable, and when it is by degrees solidified, it may form a tumor accessible

to the touch through the vagina, projecting into the pelvis and which, by a superficial examination, may be easily taken for a disease of the womb or ovaries. But we have already spoken of this cause of error in other portions of this work, and for the diagnosis of these effusions we refer the reader to the chapters treating upon fibrous tumors, deviations, flexions of the uterus, and ovarian tumors.

The treatment of perimetritis is always antiphlogistic at the outset, and it must be a matter of judgment, according to the degree of the affection, whether there is any necessity to have recourse to local blood-lettings, or whether derivatives in the intestinal canal, cataplasmata and warm baths suffice to combat the disease. We will here add, that the application of a few leeches to the vaginal portion and to the cul-de-sac of the vagina, ordinarily leads more rapidly to the proposed end than depletions through the abdominal walls. Besides the remedies above mentioned, narcotics will often be necessary during the painful paroxysms. When the effusion is solidified, we must strive to restore its fluidity, and to hasten its reabsorption by means of cataplasmata, tepid baths, friction with mercurial or iodized ointments, and repeated blisters. When the state of the patients permits it, we may try the mineral waters of Kreuznach, Kissengen, Nauheim, etc. If new febrile symptoms, especially frequent chills, emaciation, pining away of the patients, as well as greater sensibility and softening of the tumor, indicate a purulent degeneration of the effusion, it will be necessary to pass to a strengthening medication. The local application of heat will be also indicated either when the tumor spontaneously opens, or when an issue being made for the pus, the local symptoms shall have disappeared. In making an opening into the purulent spot, we should choose the place where the fluctuation was first felt. This will most frequently be in the anterior abdominal wall, immediately below Poupart's ligament, at other times in the vaginal cul-de-sac; more rarely the anterior wall of the rectum, or finally in the neighborhood of the great ischiatic notch.

As to the treatment of perimetritis and of peritoneal abscesses, originating in the puerperal condition, we refer to our Manuel d'Accouchements (p. 95, *et seq.*, 3d edition).

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§ 2. *Peri-uterine Hæmatocele—Extravasations of Blood in the Neighborhood of the Womb.*

We have frequent opportunities of convincing ourselves by autopsy that the numerous vessels ramifying in the folds of the peritoneum which surround the womb, may undergo varicose dilatation. It is especially met with in women who have had frequent pregnancies, or in whom the circulation in the vessels of the pelvis had been disturbed, either by an organic disease of the valves of the heart, or by diseases of the lungs or liver, or finally by the presence of a voluminous tumor in the abdominal cavity. When this anomaly of the vessels once exists, it will not be astonishing if the varicose veins should sometimes burst under the influence of some occasional cause, and that there should thus be formed, in the neighborhood of the uterus, an extravasation, the size of which will vary according to the amount of effused blood. These extravasations are most often formed between the folds of the broad ligament, more rarely above the peritoneal fold, which extends from the uterus to the posterior wall of the pelvis.

With the exception of a single case, we have not found such effusions very extensive except at the autopsy of parturient women, particularly those who had succumbed in consequence of tedious labor, which had required an operation. We have often met with sanguineous foci of the size of a pea or a cherry. These were sometimes recent and sometimes much changed, and were completely independent of parturition, but they had never given rise to any marked symptom during life. We must then, in the absence of sufficient personal experience, borrow from other authors, and especially from French physicians, what we shall say on this subject on the symptomatology,

course and treatment of the affection known as peri-uterine hæmatocele.

The first symptoms of this disease are, according to Viguès, various troubles of menstruation which sometimes is suddenly arrested, sometimes, on the contrary, very abundant; and some times it persists for a long time, except during some short intervals. Next a febrile excitation is observed, vague pains in the abdomen, a sensation of weight and tension in the pelvis. The hypogastrium is tense, meteoric, very tender on pressure. In palpating through the abdominal walls, a tumor in the pelvic cavity is recognized, which sometimes is so considerable as to rise even to the umbilicus. It is smooth, spherical, not mammillated, and, with the exception of the base, its boundaries may be traced all over. It is but slightly movable, and offers a tolerable consistence. By vaginal exploration, an enlargement is recognized which, according to its size, descends more or less down between the uterus and rectum; it is equally smooth and spherical, but less firm than that which is perceived through the vaginal walls; it sometimes shows fluctuation. This tumor presses the uterus upward and forward, so that sometimes the body of this organ is perceived above the symphysis pubis, and the orifice can scarcely be reached in consequence of its elevated position. The tumor ordinarily extends a little toward the right iliac fossa. When pressure is made upon it by the finger introduced into the vagina, we can recognize through the abdominal walls, that the movement is transmitted to its upper portion, and the same thing takes place during an exploration by the rectum. This latter means will give the surest indications of the dimensions and consistency of the tumor. When it has attained considerable size, it may cause very painful symptoms by deranging the functions of the bladder and rectum. The progress of the disease is different when at an early stage an opening has been made for the effused blood, or when we have been content with combating the symptoms caused by the development of the tumor. When it has not been opened in the first place, we perceive not only an augmentation in the intensity of all the symptoms in consequence of the enlargement of the tumor, but sometimes an inflammation of the neighboring organs and of the tumor

itself supervenes. Hence adhesions occur or abscesses are formed.

The opening of the tumor soon dissipates all doubts; still it sometimes happens that while the blood flows air enters the sac, and causes an inflammation of the walls, as well as a decomposition of the blood still remaining in the tumor. This decomposition is recognizable by a fetid odor and a sanious discharge.

As to the etiology,[1] Viguès indicates that all the patients whom he treated were still young, healthy and even robust. Most of them had had children, and almost all had some anomaly of menstruation. He does not think that these extravasations resulted from the rupture of one of the numerous vessels situated in the sub-pertoneal cellular tissue; but he thinks that one of the follicles of the ovary burst in a spot where the latter was not completely invested by the peritoneum; the blood then spreads between the ovary and the peritoneum, and extends from thence toward the neighboring organs. Laugier thinks that a hæmatocele cannot be formed except when from any cause whatever, the ovary is found in an extraordinary state of congestion; but he does not admit that the rupture of vessels situated between the folds of peritoneum can give rise to the formation of these tumors. For our own part, the latter view seems to us the more probable, as the opinion of Viguès, and even that of Laugier, do not rest upon sufficient anatomical researches.

The most frequent and most fortunate **termination** of hæmatocele is by reabsorption; a discharge of blood by the vagina or the rectum, as well as the formation of an abscess, are more rarely observed.

The majority of physicians, whose observations are known, recommend puncture by the vagina,[2] either by means of a

[1] Besides the predisposing causes, Voisin, in a remarkable thesis, which he issued in Paris in 1858, mentions sexual relations as efficient causes six times in twenty; strains, exterior violence, six times in twenty; moral emotions, etc.—*French translators' note.*

[2] Puncture, almost exclusively practised for the last twenty years, is now almost abandoned, and Nélaton himself has not recourse to it, "except when constrained by the violence of the pains, the development of the tumor and the fear of its opening into the peritoneum." According to the statistics of Voisin, in twenty-seven cases unoperated upon, there were nine deaths (a third), and in

bistoury or strong trocar. It is only necessary to take the precaution after having made an issue for the contained liquid, to remove all the clots which may remain in the tumor. To avoid the entrance of air, it is prudent to inject water into the tumor when emptied. If a few days after the operation the liquid which escapes from the wound takes a purulent or sanious character, it will be well to substitute for the emollient injection employed in the commencement, an injection of chlorinated water. The nervous or inflammatory symptoms which remain after the operation, or may be developed in its course, must be treated according to well known therapeutical principles.

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§ 3. *Neoplasmata.*

Here we shall only consider cysts and fibrous tumors, for the tuberculous and cancerous infiltration of the folds of the peritoneum, which is a result of a constitutional affection, is not in the province of the gynecologist.

A.—*Cysts formed between the folds of the broad ligament.*

Cysts are sometimes formed by a collection of liquid in the canals of the organ of Rosemuller; sometimes they are com-

eight cases operated upon, three deaths (more than a third). Voisin proposes local bleedings, revulsives, emollient applications, and inwardly narcotics, purgatives, and finally tonics. Always the most complete repose.—*French translators' note.*

[1] Prost, in 1854, Fenerly and Cestan, in 1855, Engelhardt and Gallardo, in 1856, and Voisin, in 1858, have published theses on hæmatocele. The first do not carry back the knowledge of this affection further than Ruysch, in 1737. Voisin, on the contrary, thinks he has found in two works of Hippocrates passages treating upon the subject. He cites among others: vol. v. (trad. Littré.), 4th book on Epidemics, § 38, p. 181. vol. v. 5th book, § 1, p. 205. voi. viii., 1st book, § 2, p. 21.—*French translators' note.*

pletely independent. They almost always belong to the category of simple cysts, and it is rare that they exceed the size of a hen's egg. In some cases cysts are said to have attained the size of a man's head; and we remember ourselves a case in which we found in the broad ligament of the right side a colloid tumor of the size of an infant's head. Sometimes even we find, in a *single* ligament, two or three simple cysts, or even more. These do not differ as to the structure of their walls, their consistence, their color, and the chemical composition of their contents, from analogous affections of the ovaries. The symptoms during life are also completely identical in the two affections, so that in the present state of science, it is not possible, when the presence of a simple cyst of small dimensions is recognized, to decide with certainty whether it originates in the ovary or in the broad ligament. But when the volume of the tumor is considerable, or when the cyst is multilocular, we are rarely deceived in considering the ovary as the seat of the difficulty.

When we have diagnosticated a cyst having its origin in the broad ligament, the prognosis will be more favorable than in an analogous affection of the ovary, because, as we have already said, cysts of the broad ligament rarely attain any considerable size.

As to treatment, considering the little certainty of the diagnosis, we refer to the chapter treating of cysts of the ovary.

B.—*Fibrous bodies.*

It is not very rare to find in the folds of the peritoneum which surround the uterus, small fibrous bodies of the size of a pea to that of a cherry, and it is probable that they are formed in consequence of small extravasations of blood. Fibrous bodies of more considerable size, which are sometimes found there, always grow from the sides of the uterus, and only arrive later between the folds of the ligament. We have seen like fibrous bodies reposing with a large base upon the lateral wall of the uterus, while others have but a very narrow pedicle, which is lost in the tissue of the womb. When these growths are not sufficiently large to interfere with the functions of the neigh-

boring organs, they are not of any clinical importance, while the other tumors, adhering to the uterus upon a large surface, and pushing between the folds of the peritoneum, do not differ in their symptoms from sub-peritoneal fibrous bodies of the womb, of which we have already spoken.

PART THIRD.

PATHOLOGY AND THERAPEUTICS OF THE DISEASES OF THE FALLOPIAN TUBES.

§ 1. *Faults of Conformation.*

A. We must here mention, in the first place, the **complete absence of the two oviduct canals.** It ordinarily accompanies a rudimentary state or a complete absence of the uterus, which is easily comprehended if it is remembered that the tubes, as well as the uterus form in the beginning but a single organ, known as the **canals of Gartner.** Furthermore, as Rokitansky has observed, absence of the oviducts is not necessarily connected with that of the uterus, for the Fallopian tubes have been found in the shape of little ducts, doubled upon themselves and terminated in a cul-de-sac, even when there has not existed the slightest rudiment of the uterus. The **unilateral** absence of the tubes is more frequent, and ordinarily accompanies the rudimentary development of the corresponding half of the uterus. Sometimes the absence of the ovary and the uterine ligaments of the same side has been observed. The complete absence of the tubes naturally excludes all possibility of conception, and has not been observed, except in sterile women, while some observations exist of women who have conceived one or more times in whom autopsy has shown the absence of one of the tubes. It is not necessary to add that these deformities are accessible neither for diagnosis nor treatment, and possess an anatomical rather than a clinical interest.

B. Under the name of **rudimentary development** of the oviducts is designated an anomaly in which on one or both sides of the uterus there is only seen a rudiment of the tube, more or less great, sometimes closed, sometimes open at its exterior

extremity. In the same category should be placed the remains of those organs which are sometimes encountered in the neighborhood of the ovaries in the absence of the uterus; as well as the insufficient development of the parenchyma of the tubes, with a slight thickness of the walls which results therefrom. Finally, we should also designate under the name of rudimentary development the excessive narrowness of the whole canal, the unequal length of the two oviducts, which frequently accompanies such an anomaly of the broad ligaments of the womb.

§ 2. *Anomalies in the Position and Course of the Tubes.*

Among the congenital anomalies we find the abnormal insertion of the tubes in the uterus, of which Pole has published a case where the left tube started from the inferior half of the neck of the uterus, and was twice as long as the same organ of the right side.[1]

As the ovaries have been found in hernial sacs, so have the tubes also, as is proved by the cases of Berard,[2] Schiller,[3] Voigt,[4] Mayer,[5] and others.[6] All these cases refer to inguinal hernias.

As a result of the peritonitis, so frequent in the neighborhood of the tubes, we often find in the cadaver adhesions between the oviduct canals and the neighboring organs, as well as deviations, which are the result. The torsions and flexions of the tubes thus produced from it are frequent causes of the constrictions and even the partial or complete atresias of the canal of the tubes, in consequence of which there often forms dropsy of the tubes, of which we shall speak hereafter. The complete impermeability of the canal will be a cause of sterility every time that it is bilateral, while a simple constriction may prevent the arrival of the fecundated ovule into the uterus, and may thus give rise to a pregnancy of the tubes. Further

[1] Mem. of the Med. Society of London. Vol. ii., p. 39.

[2] Revue m´dicale de Paris. May, 1839.

[3] Neue Ztschr. f. Gbtsk. Bd. xii., p. 372.

[4] Hufeland's Journ. Bd. viii., St. iii., p. 174.

[5] Salzb. med. chir. Ztg. Bd. iv.

[6] Geoffroy Saint-Hilaire, Hist. des anomalies de l'organisation. Paris, 1832, vol. i., pp. 390, 529, 638.

more, simple adhesion of the tubes to the neighboring organs may prevent conception, inasmuch as the oviduct canal, fixed in an abnormal position, cannot receive the ovum on its escape from the vesicles of Graaf.

§ 3. *Constrictions of the Canal of the Tubes.*

These are frequently met with in old age, in consequence of the concentric atrophy of the genital organs peculiar to this age. This constriction is sometimes uniform throughout the whole of the organ; sometimes it is limited to certain points. These anomalies are frequently produced by the hypertrophy and swelling of the mucous membrane, which accompany inflammation and catarrh of these organs, and also, as we have said, by the peritoneal adhesions of the tubes. When the constriction is considerable, and when at the same time the epithelium is detached at the constricted point, a complete occlusion may supervene. This, however, rarely occupies the entire length of the canal, but ordinarily remains limited to a few points. These obliterations are more frequent near the extremity of the tubes next to the uterus, because here the canal is the most narrow, while the fimbriated extremity is rarely obstructed, except by a peritoneal effusion. We shall treat further of occlusions in treating of dropsy of the tubes; and will only add here that sterility is always produced by complete bilateral atresias and by constrictions in the majority of cases.

§ 4. *Dilatations of the Canal of the Tubes.*

These are observed only as a result of mechanical obstacles, such as a collection of mucus, pus, blood, tuberculous matter, etc. We shall speak of them hereafter.

§ 5. *Hæmorrhages in the Canal of the Tubes.*

It would appear that hæmorrhages are not very rare when the menstrual congestion is extreme; at least we have in mind three autopsies of women dying during menstruation, in whom was found, in one or both tubes, coagulated blood, in small

quantity. It is true, we ought also to mention here a case of a girl, 22 years of age, affected with rubeola, who died immediately after the appearance of the courses with all the symptoms of a very intense peritonitis, and with whom at the autopsy no other possible cause of death was found but a hæmorrhage in the left tube, which was as thick as the index finger; it was very distended, showed a bluish red color, by reason of the blood which was seen through its wall, and it contained, when opened, about two ounces of semi-liquid, semi-coagulated blood which communicated by the abdominal orifice with a sanguineous effusion of about sixteen ounces, almost all coagulated, which was situated in the cavity of the pelvis. Rokitansky describes in his *Pathological Anatomy* similar cases also terminating in death.

Another cause of hæmorrhage into the canal of the tubes is atresia of the uterus or of the vagina and the retention of the menstrual blood which is the consequence. When the dilatation of the uterus has attained a certain degree, the blood may by degrees pass into the tubes, and if it does not find an issue into the abdominal cavity, it may produce a fatal rupture of the walls of the oviduct canals, as is proved by a case related by M. Haën.[1] We will not discuss the justice of the opinion of M. Hoffmann,[2] who affirms that after an abortion, or even a delivery **at term,** the blood accumulated in the womb may flow back into the tubes and even into the abdomen, in consequence of the anti-peristaltic contractions of the uterus. We think rather that the cause of these hæmorrhages is the rupture, during parturition, of one of the vessels of the tube itself, and we will add, in support of this opinion, that, in the cadaver of a woman who died in consequence of a puerperal peritonitis and endometritis, we found in the right tube an effusion of blood evidently proceeding from the rupture of one of the veins situated in the thickness of the wall of the organ. The traumatic rupture of the oviduct canals with hæmorrhage is certainly very rare; still, a case related by Godelle[3] proves that it is not impossible.

[1] Ratio med. Vol. iii., p. 33.

[2] Opusc. pathol. prac., p. 358.

[3] Arch. gén. de méd., 2d series, vol. v., p. 103.

We must add, in conclusion, that the most frequent cause of the **rupture** of the Fallopian tubes is a tubal pregnancy; we refer for further details to treatises and manuals of obstetrics.

It is not possible during life to establish, with any certainty the diagnosis of a tubal hæmorrhage. Its presence may perhaps be regarded as probable, when, in a case of atresia of the uterus or the vagina, the considerable size of the uterus, resulting from the retention of a large quantity of menstrual blood, suddenly diminishes, and when this diminution is accompanied by symptoms of an acute peritonitis; still, it is requisite to assure ourselves whether the real cause is not a rupture of the walls of the uterus.

When the hæmorrhage is not abundant and the blood simply flows into the canal of the tubes without penetrating into the abdominal cavity, there will be no danger to the life of the patient. It is far otherwise when any considerable quantity of blood has penetrated into the peritoneal sac. If the sanguineous effusion persists for a long time in the canal of the tubes, it finally undergoes the well-known transformation peculiar to effusions of blood. Thus, during our residence at Prague, we saw a pathological preparation in which the right oviduct was in two places obliterated. It was dilated to the size of a pigeon's egg, and contained a pultaceous mass, of a yellowish brown, composed of fibrin and altered blood corpuscles, which could not but have proceeded from an effusion of blood which had taken place long before. From the uncertainty of the diagnosis of tubal hæmorrhages, the question of special treatment cannot arise. When the symptoms of a considerable hæmorrhage into the abdominal cavity are seen, there is nothing to be done but to apply cold compresses over the abdomen, and to prescribe lavements and cold injections into the vagina, with analeptic medication, while if peritonitis is declared, it should be treated according to general rules.

§ 6. *Inflammation of the Tubes.*

Except in gestation, we observe scarcely any but the catarrhal form of the inflammation of the mucous membrane of the tubes, and ordinarily this is chronic, while the acute inflammation

exists only during the menstrual congestion of the uterus, or simultaneously with the acute catarrh of the uterine mucous membrane. Chronic catarrh almost always accompanies an analogous affection of the mucous membrane of the uterus or vagina. By the much greater quantity of the liquid secreted, it ordinarily causes a more or less marked dilatation of the oviduct, whose hypertrophied walls present a slight serous infiltration, while the mucous membrane itself, especially when the duration of the disease has been long, is softened, tumefied and of a deep red, almost black. The mucus inclosed in the cavity forms a mass which is sometimes viscous, sometimes like dextrine (resulting from a melange of mucus and pus), sometimes entirely puriform, and when the canal of the tube is not partially obliterated, it requires but a slight pressure to make it flow out from the abdominal extremity. The inflammation of the mucous membrane is occasionally continued upon the portion of the peritoneum connected with the fimbriated extremity; it then forms an exudation which sometimes completely surrounds the free extremity of the tube, and an occlusion results from it, or at least adhesions with the neighboring organs.

Chronic catarrh of the tubes is one of the predisposing causes of the partial obliterations which are often met with in various places in the same canal. The continual hypersecretion causes an unnatural quantity of mucus to be collected between these atresias. The walls then dilate, become gradually thinner, and at length, after a longer or shorter time, form bladders of different sizes filled with an aqueous liquid like serum. It is more rare to encounter in these dilatations a brownish, greenish or blackish mass, whose extraordinary color results from previous hæmorrhages, and from various results of numerous inflammations. This affection, which is designated **dropsy of the tubes**, is more frequent near the abdominal extremity of the organs; still there is frequent opportunity to observe the oviduct canals folded in several places, divided into five, six, or even a greater number of pouches of very varied dimensions, resulting from as many obliterations of the canal. We have observed a case where the dilatation of the tube was such that the pocket which it formed was almost as large as the head of a child ten years old. But, in general, these tumors do not exceed the size of a man's fist, and

the observations of ancient writers, who declare that they have met with some which contained as much as 20, 30, or even 100 lbs., are more than doubtful.

The old medical literature, as well as the modern, contains a considerable number of observations, in which the authors admit that the liquid contained in the tube may sometimes open an issue through the uterus and vagina. Although this **profluent dropsy of the tubes,** as Rokitansky calls it, may be a fact perfectly demonstrated, Kiwisch has thought it proper to state that the same symptoms may result from the perforation of a cyst of the ovary, or from a hydrorrhœa of the uterus. He considers it, furthermore, astonishing that no one has ever yet observed a discharge from the abdominal extremity of the tubes into the cavity of the peritoneum, which would appear to be the more natural result, seeing that the dropsy is ordinarily developed in that direction than toward the side of the uterus, where, moreover, the canal itself is narrower, and often presents some curve.

After having reproduced here the doubts of Kiwisch, of this existence of the affection of the tubes, we will take the liberty of giving some account of an autopsy which will serve to prove the possibility of such discharges from the uterine extremity of the oviduct canals. In 1849, we assisted at the autopsy of a woman of about sixty years of age, who had died from an organic affection of the heart, and with whom the right tube was transformed into a tumor of the size of a goose's egg, filled with a serous, limpid and colorless liquid. The left showed a like tumor, but a little smaller, very flaccid and vacillating, and containing from one-third to one-half ounce of a bloody liquid. This dilatation was situated very nearly in the middle of the tube, and was completely closed at its abdominal end, while the other extremity communicated with the womb by a canal of $1\frac{3}{5}$ inches in length, and about three-fifths of an inch in diameter. The uterus itself was slightly enlarged, its walls a little thinned, in other respects perfectly normal. Unfortunately, the physicians who had treated the patient were unable to tell us if during life any liquid had ever flowed from the vagina; but that appeared to us more than probable, for there was a large communication between the uterus and the dilated portion of

the tube, and the size of the tumor was such as must have been caused by a quantity of liquid much greater than that found at the autopsy.

After having thus proved the possibility of such a profluent dropsy of the tubes, we should, however, remember that such discharges from the tubes are extremely rare, for up to the present time, we have not found in our practice a single case of this character. And as to the fact mentioned by Kiwisch, of the absence of observations of similar discharges into the abdominal cavity, we think it should be explained by the natural course of the disease. In fact, as we have already said, tubal dropsy always follows a catarrh, and this latter affection is always accompanied with an exudation, from which the obliteration of the abdominal extremity of the tubes results, as well as adherences with the neighboring organs, which completely prevent the exit of the liquid. In the course of a chronic catarrh it sometimes happens, but rarely, that the wall of the tubes secretes an abundant quantity of a purulent or sanious matter, which collects in the canal, and forms a real **abscess of the tubes.** It is one of the most unfortunate of the terminations of the disease under consideration, for although the purulent collection always opens, and its contents are poured into the peritoneum, or are completely expelled from the body in consequence of a perforation of the rectum, vagina, etc., it appears to us probable that, in the majority of cases, if not always, the abscesses of the tubes are the consequence of parturition, for experience has demonstrated that it is then only that the mucous membrane of the tubes is subject to a croupy inflammation, accompanied by an abundant exudation favorable to the formation of pus. Furthermore, all the cases which we have observed were among women who were delivered a longer or shorter time before the commencement of the disease.

We have only observed one patient in whom the abscess of the tubes had opened through the rectum. She was a domestic, in the foreign hospital of Prague, whom we treated in 1849 and 1850, at the gynecological clinic of that city; with her, also, parturition was the cause of the disease.

We have said above that, after a long continued dropsy of

the tubes a purulent collection might form in the tumor. It is unnecessary to state that this inflammation, or rather the softening of the already thinned walls which results therefrom, easily produces perforation. The simple catarrh of the tubes is never, during life, accompanied by symptoms upon which a diagnosis may be established, and considerable dropsical dilatations of the tubes, have been often seen to persist during many years without presenting a single morbid phenomenon of any importance. Our own observations have convinced us that this affection always behaves in this manner, so long as an inflammation of the peritoneum is not united to the disease of the tubes. The symptoms are especially striking, when the perforation of a tubal abscess is the cause of the peritonitis. Kiwisch declares that in some very thin women, the presence upon the two sides of the fundus of the uterus of elongated, mammillated, elastic tumors, pushing from the womb toward both sides of the pelvis, justifies the diagnosis of a bilateral tubal dropsy; but we do not think that these symptoms suffice, as the basis of a certain diagnosis, for we have no means of distinguishing the tumors in question from cysts located in the two ovaries.

In a word, we think the diagnosis of catarrh, of dropsy and of abscess of the oviduct canals, is impossible with the means at present at our disposition. And, especially, we shall never succeed in distinguishing tumors of the tubes from analogous affections (cysts, abscesses, etc.) of the ovaries. Hence, as regards treatment, we refer to what we shall say hereafter upon the subject of the diseases of the ovaries. We will, however, add here, before closing, that paracentesis of tubal dropsies, advised by some authors, is entirely useless, for such tumors do not, unless in rare exceptions, attain a size so considerable as to cause pains, rendering an operation necessary. The primary **exudation** is never noted upon the mucous membrane of the tubes, except as a complication of the puerperal inflammation of the uterus and peritoneum. We will not enlarge upon this subject, as it does not enter into the plan of this work.

§ 7. *Neoplasmata.*

A. **Tuberculosis.** In the tubes, as in the uterus, tubercles are not met with, save in the form of a tuberculous infiltration of the mucous membrane. The uterus, is at the same time, ordinarily the seat of the same affection; still it has been many times seen confined to the tubes. We have ourselves once seen a tuberculous infiltration of the uterine mucous membrane implicating only the left half of the womb, while at the same time the right tube alone presented the same affection. Rokitansky very well describes the pathological alterations resulting from this affection, when he says that the whole mucous membrane is transformed into a purulent mass, in decomposition, of a yellowish white, of a cheesy consistence, unctuous to the touch, and obliterating the entire canal of the tube. The tube itself is more or less tumefied, convoluted like intestines, and its parenchyma is transformed into a whitish tissue, lardaceous and hard to the touch. The mucous membrane of the fimbriated extremity, equally infiltrated with the tuberculous mass, projects outwardly in the form of a cauliflower, and it is inverted on the peritoneal side.

It is rare to meet with the disease in the form of simple granulation, miliary tuberculosis; but when it exists it is especially toward the abdominal extremity.

When the tuberculosis of the tubes has continued for a time sufficient for the walls of these organs to be, in some places, eroded by the purulent decomposed material, there results therefrom a perforation into the abdominal canal, which in other cases does not take place on account of the adhesions which the diseased part contracts with the neighboring organs. As the tuberculosis of the tubes always accompanies a similar affection of other more important organs, such as the lungs, the intestinal canal, the peritoneum, etc., and as it does not present symptoms sufficiently characteristic for diagnosis to be possible, it is not of great practical interest.

B. **Cancer.** Cancer of the oviduct canals is always a secondary affection, that is to say, transmitted through other organs, particularly the uterus, more rarely the ovaries or peritoneum. A primary cancerous alteration of the tubes is an

excessively rare occurrence. In a case which we observed, the **left** tube, the diameter of which had attained almost one inch, was filled with a pultaceous cancerous mass of a milky white, which was plainly the product of an infiltration of the mucous membrane; the patient further presented in the **right** ovary a softened encephaloid of the size of a fist, the substance of which was in a state of dissolution, and had opened a passage into the abdominal cavity, thus producing the fatal peritonitis. This fact may also serve to prove the truth of the opinion held by many authors, that the cancerous affections of the Fallopian tubes are not necessarily transmitted by contact with other organs presenting the same disease.

C. Among all the **cysts** of the tubes, the most frequent form consists in the dilatation of the canal of Müller, the extremity of which projects beyond the pavilion of the tube. These little cysts are ordinarily of the size of a millet seed, or of a pea, and it is rare that they attain that of a walnut. As may be easily understood, they offer no practical interest. It is the same with other small cysts which are sometimes observed between the parenchyma of the tubes and their peritoneal envelope, and which are themselves rarely larger than a pea.

D. As to **extra uterine pregnancy** occurring in the oviduct canal, we refer to the proper chapters in treatises and manuals on obstetrics.

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PART FOURTH.

PATHOLOGY AND THERAPEUTICS OF THE DISEASES OF THE OVARIES.

CHAPTER I.

General Considerations.

If we felicitate ourselves upon the progress which has been made, during the last few years, in the diagnosis and treatment of the diseases of the uterus, we should, on the other hand, remember that the labors of gynecologists in respect to the diseases of the ovaries, have been almost fruitless in practical results.

The position of these organs, concealed in the depths of the pelvis, which renders them almost completely inaccessible to all means of exploration that we know at present, explains why the diagnosis of ovarian affections, without profound alterations in the tissue of these organs, can never be made with the same precision as in the different affections of the uterus, in which we may be aided by the touch, and often also by the sight. Hence, when the disease of the ovary is more advanced, when it is the seat of a pathological alteration, which, being accompanied by a considerable increase in the volume of the organ, is easily recognizable, the affection has then attained such an advanced stage, that the physician can but very rarely obtain a favorable result. But as the various diseases of the ovaries are among the most important in the domain of gynecology, we think that before studying in detail the different ovarian affections, we ought first to premise here some general considerations respecting the etiology, the symptomatology, and the diagnosis of these affections.

§ 1. *Etiology of the Diseases of the Ovaries.*

In looking at the development of the diseases now under consideration, we are forced to recognize that a great number among them are the consequence of the **physiological functions** of these organs. It is well known that the congestion which every month accompanies the descent of the ovum frequently exceeds its normal degree, or else it persists too long with such a violence, that sooner or later it must necessarily result in pathological alterations. After a brusque and violent congestion, vessels are frequently seen to burst and produce hæmorrhages, not only into the cavity of the vesicles, but also into the proper tissue of the ovary. And these hæmorrhages, little abundant as they may be, may of themselves, or in consequence of a resulting exudation into the surrounding tissue, occasion pathological alterations, which sometimes may only be an obstacle to ovulation, but which at other times are much more serious, in consequence of the formation of abscesses, etc., which may endanger the patient's life.

If the catamenial hyperæmia, although too intense, is less brusque, but persists too long with a certain severity, the rupture of vessels is less to be feared than the formation of effusions. The latter are a frequent cause of an acute or chronic ovaritis, with all the affections consequent thereupon. Among these, in the first place, should be mentioned the various forms of cysts, which are often the consequence of these continued hyperæmias, or rather of the hypertrophies of the walls of the Graafian vesicles, and of the considerable augmentation of their contents, which are the ordinary consequences.

We should further consider that these hyperæmias may contribute greatly to the development of any ovarian affection already preëxisting; at least, it is often remarked, that these ovarian tumors, which we shall hereafter consider, make, at the epoch of menstruation, sensible and rapid progress.

The **structure** of these organs is also important in connection with the etiology of ovarian diseases, and especially the presence of numerous Graafian vesicles, perfectly closed and invested with a thickened wall, is of great importance in the development of many affections of the most serious character. We fre-

quently observe an augmentation of their contents, which can, with more difficulty, make their escape, as at the same time there ordinarily exists a hypertrophy of the walls, in which a new vascularization is formed, forming in its turn a continual exudation into the cavity of these vesicles, and thus increasing the quantity of their contents.

Colloid cancer is frequent in the parenchyma of the ovary, and the great disposition which all the glandular organs have to undergo cancerous degeneration, explains the frequency of this affection in the ovaries.

In further considering the intimate relation of the ovaries with the neighboring organs, and especially with the uterus, the vessels of which also furnish the blood necessary for the ovaries, it will be understood that similar anatomical relations will be the cause of many ovarian diseases, and, in fact, the extension to the ovaries of the inflammatory affections, congestions, cancerous degenerations, etc., of the neighboring organs, is frequently seen. Every one knows also that the deviation of the ovaries is a frequent complication of the deformities and deviations of the uterus.

The peritoneal coat of the ovaries yet remains to be examined. The inflammation of the peritoneum with exudation, is unfornately so frequent in the course of menstruation, pregnancy, labor, and the lying-in, that it is not rare to find the ovaries deviating in various directions, or fixed to the neighboring organs by numerous adhesions. Indeed, they are sometimes so surrounded by the products of exudation, that not only are their functions completely abolished, but, like the exudation, they undergo a purulent or putrid decomposition, which causes great ravages in these organs.

Among the **exterior causes** which may act on the female economy, have always been reckoned as frequent causes of ovarian affections, the taking cold during menstration, as also immoderate coitus, and even entire absence therefrom. It is for the future to prove more completely than has hitherto been done, whether or not this opinion, which is not improbable, is really true.

§ 2. *Symptomatology of Diseases of the Ovaries.*

If we first examine the symptoms complained of by persons affected with ovarian diseases, we shall see that their number is very limited. Considering the low degree of sensibility possessed by these organs, we shall not be surprised to discover the existence of profound alterations, without the patient having perceived any severe pains. It sometimes even happens that the entire tissue of the ovary is altered or completely destroyed, so that, even upon an attentive examination, we can find no trace of normal tissue; and still, during the whole course of the disease, which is often many years, the patient has complained only of pains of small intensity. It is sufficient to mention here the immense ovarian tumors, which sometimes attain the weight of many pounds, without being accompanied by other morbid symptoms than those due to the mechanical compression of the neighboring organs, to the dilatation of the abdominal walls, and the enormous weight of the abdomen. It may, however, be replied, that diseases of the ovaries, such as acute or chronic ovaritis, and some forms of tumors, cause sharp pains. But these affections are always accompanied by inflammation of the portion nearest to the peritoneum or other neighboring organs, and it is this latter affection, and not the ovarian disease, which is the cause of the pains.

It results, then, from what we have said, that, without wishing absolutely to deny the sensibility of the ovaries, the symptoms dependent upon an excitement of the sensibility will have little importance for the diagnosis of the diseases of these organs, unless, perhaps, in certain exceptional cases which will be mentioned hereafter.

The symptoms resulting from disorders in the functions of the ovaries do not lead to a more certain diagnosis. The menstrual flow is, as we know, the only fact from which we draw any conclusion as to the regularity or the anomalies of ovulation. But this conclusion is neither sure nor exact, for the maturation and descent of the ova sometimes follow their normal course, while we observe the most varied anomalies in the exterior manifestation of these phenomena in the catamenial flow. At other times, on the contrary, we have

found a profound alteration in the ovaries, and still the menses have not ceased to be regular, and similar facts have been observed, even when both ovaries were affected, provided that, in a portion of one of them, there still remained some Graafian vesicles in a physiological state, in which the maturation and descent of the ova could follow their regular course.

In spite of the little certainty which the troubles of menstruation can afford for the diagnosis of the various diseases of the ovaries, the physician should not, however, neglect them; for they may be of some utility when they are united with other morbid phenomena, as in all cases where there exists some pain or a tumor growing in the region of the ovaries.

Neither are the disorders in the function of the neighboring organs which so often accompany diseases of the ovary without importance in a diagnostic point of view. Thus the other genital organs (the uterus, Fallopian tubes, uterine ligaments, vagina) present secondary affections in the course of ovarian diseases. We have only to mention the deviations of some of these organs which constantly accompany the voluminous tumors of the ovaries, and these deviations are naturally not without influence in the functions of these organs. We may also refer to the frequent cases in which an inflammation of the ovaries has been found to extend to the womb, to the broad ligaments, and to the Fallopian tubes. The well known fact that neoplasmata of the ovaries are often followed by similar affections in the neighboring genital organs confirms our opinion.

From what we have said, it will be seen that derangements in the functions of the entire genital outlets may also furnish some important signs for the diagnosis of the diseases of the ovaries. It is also unnecessary to state that the functional troubles resulting from the deviations and compression of the bladder, the rectum, pelvic vessels and nerves demand the most scrupulous attention of the physician. Dysuria, ischuria, incontinence of urine, difficulty of defecation, various neuralgic symptoms as well as œdema of one or both the inferior extremities resulting from compression of the pelvic veins, have always been considered as important signs of the ovarian diseases, and especially of tumors. In the course of this work we shall indicate the special characteristics which are important for the

complete understanding of the various groups of symptoms which we have just mentioned.

It must indeed be admitted that although ovarian affections frequently exist without injurious influence upon the general constitution, still this is not always the case, but frequently it is far otherwise. We often observe various disorders of the digestion, hematogenesis and innervation, accompanied by various symptoms of anæmia and hysteria, and that not only in the course of deep alterations in the tissue of the organ (as cysts, simple and multiple, cancerous and colloid tumors, etc.), but also after a simple congestion or an acute or chronic inflammation.

We have already spoken of the troubles which may supervene in the circulation of the inferior extremities, and it only remains to add that the compression of the lungs by very voluminous ovarian tumors is sometimes the cause of very painful disorders in the functions of respiration, which may become dangerous to the life of the patient.

§ 3. *Diagnosis of the Diseases of the Ovaries.*

Although physical examination furnishes us results less numer- and less sure for the diagnosis of the diseases of the ovaries than for that of the diseases of the uterus, which may be comprehended from the concealed position of organs so little accessible to exploration, these results are however the only ones capable of guiding the physician, not only in the diagnosis, but also in the treatment of these affections.

Referring the consideration of the results of exploration, so far as they appear to us in the diagnosis of ovarian diseases, to the special chapters which follow, we will here state in passing how far these affections are accessible to the eye, the ear and the touch, and what are the methods of examination which we should make use of.

A.—*Examination by Inspection.*

The physician can determine by the eye, in an indirect manner it is true, all the diseases of the ovary which are accompanied by a considerable increase in the size of these organs. Into this category enter all the ovarian tumors, the nature of

which is so varied (simple and multiple cysts, cystosarcomata, cancers, fibrous tumors, etc.) According to the dimensions and locality of these tumors, the dilatation of the abdomen is sometimes unilateral, sometimes equal upon both sides. The surface of the portion of the tumor situated immediately behind the abdominal wall is sometimes uniform, sometimes irregular, showing the presence of the projections and depressions which are occasionally observed upon the surface of this wall, and which are often sufficiently marked to be discoverable not only by palpation, but even by inspection alone. When the skin of the abdomen has been much disturbed by a considerable tumor, it is not uncommon to observe ruptures in the deep layers of the skin. These are especially remarked in the inguinal regions, from whence they sometimes extend even to the internal aspect of the thighs in the form of bluish or brownish streaks, much resembling cicatrices. The umbilical fossa often also disappears, and sometimes the umbilicus is seen, as in the last weeks of gestation, projecting beyond the surface of the abdomen and by its form and dimensions resembling a thimble. As in the abdominal cavity, it is very rare to see other tumors attain the same dimensions as the ovarian tumors, the alterations of the abdominal envelopes which we have described are not without importance in the diagnosis of these affections. We have already stated how ovarian tumors may give rise to a serous infiltration visible in the inferior extremities; we shall again speak of it with further details hereafter.

B.—*Examination by Auscultation.*

We should here mention, in the first place, the sounds which are sometimes, though rarely, heard in the vessels during the presence of large ovarian tumors. Some gynecologists assert that such sounds have never been heard in the abdomen of women affected with this disease, but the infrequency of the fact explains this erroneous assertion. In spite of the great number of patients whom we have treated for this affection, we must allow that it has not been until after a very attentive examination that we have heard in some cases only the sounds in question, and in these cases the autopsy has always demon-

strated the presence of a tumor, whose circulatory apparatus was very much developed. It results from what we have said that when by auscultation we recognize such a symptom, we should rather infer the existence of a tumor of the womb than of the ovaries. Considering the frequency of exudations upon the surface of voluminous ovarian tumors, or upon the corresponding portion of the parietal fold of the peritoneum, one should not be astonished on auscultation of the abdomen to hear occasionally a distinct friction-sound, especially when the patient makes some movement or breathes deeply.

When the tumor is filled with a liquid, we can, if we auscultate and percuss at the same time, hear a characteristic bruit produced by the shaking of a liquid.

We shall see, hereafter, in speaking of the special pathology of diseases of the ovaries up to what point we may make use of these various auscultatory facts to recognize the nature of the different tumors, or to distinguish them from other affections.

C.—*Examination by Exploration.*

Here, as in the diagnosis of the diseases of the uterus, we must practise the touch exteriorly and interiorly. The normal position of the ovaries in the cavity of the small pelvis not permitting them to be perceptible to the palpation of the inguinal regions, it is unnecessary to say that the diseases of these organs which are accompanied by a considerable augmentation of volume can be the object of an examination by the explorative method which now occupies us. The physician should, in the first place, determine if the tumor which he has recognized in the hypogastric region be situated upon the median line, or if it corresponds to the lateral situation of the ovaries. Notwithstanding the very numerous instances of small ovarian tumors of the size of a pullet's egg to that of the fist, situated sometimes upon one and sometimes upon the other side of the abdomen, still it is not less frequent, when they have not surpassed the volume indicated, to encounter them more or less in the median line. The recognition of this fact is important because we see thereby that the presence of a tumor in the median line of the body does not exclude the possibility of its dependence upon the ovaries.

Should the tumor be more considerable, it is necessary, in addition to its volume, to have regard to its consistence and to the presence or absence of fluctuation which may be general or limited to certain parts of the tumor. We should examine the surface of the tumor situated behind the abdominal wall, to know if it is smooth, or if it presents more or less considerable projections. We should also take into account the degree of its mobility, and as far as possible its relations to the neighboring organs. In internal exploration, the hand will ordinarily suffice. We must here remember that so long as the ovary is healthy, and has undergone no increase of size, the finger cannot perceive it either by the vagina or the rectum.

The procedure differs in nothing from that described in the first portion of this work in connection with the exploration of the womb. But as the diseases of the ovaries in which the organ presents a considerable size are alone accessible to this method of exploration, the principal end of the vaginal touch will be not so much to establish the presence of the tumor as to ascertain whether or not it belongs to the ovary. As the seat of the affection does not always furnish certain data for this purpose, it will be prudent in this examination to bear in mind all the independent tumors of the ovaries, especially those which originate from the uterus, in order by exclusion to arrive at the power of determining, if these physical properties of the tumor show the affection to belong to the ovaries or to some other pelvic organ. In considering further, with the necessary attention, the commemorative signs and the different subjective symptoms which accompany the disease, one may, in the majority of cases, after having examined the location, the consistence, the mobility and sensibility of the tumor, recognize with certainty, whether the tumor does or does not belong to the ovaries. It is necessary, indeed, for this diagnosis to have an exact knowledge of the situation of the various ovarian tumors, and of their influence upon the neighboring organs. But a detailed explanation of these facts would compel us to pass beyond the limits of this chapter, which treats exclusively of generalities. It will suffice to have made the importance of this matter felt in a diagnostic point of view, and to refer to the chapters of this work where this subject is treated in detail.

The ovarian tumors being often situated in the recto-uterine cavity, it will be understood that the rectal touch may become a valuable means of diagnosis, especially in doubtful cases. Sometimes, also, but more rarely, it may happen that the introduction of the uterine sound will be the only means of learning with some certainty the point of departure of a pelvic tumor. The frequent coexistence of these affections of the ovaries and of the uterus, will also sometimes necessitate the use of the speculum, and that especially when we may have found in the patient some symptoms which are not explained by the disease of the ovary which we have diagnosticated. We have only to name here the painful uterine colics, the excessive catamenial flow, metrorrhagias, leucorrhœas, which when united to a disease of the ovaries, always prove that, in one way or another, the other genital organs are not in their proper condition.

Finally, not to omit anything, let us say a word on the explorative puncture which may be indispensable to distinguish the solid tumors of the ovaries from those which contain a pent-up liquid. The more or less elevated position of the tumor will decide whether it is desirable to introduce the trocar through the abdominal walls or by the vagina.

CHAPTER II.

Special Pathology and Therapeutics of Diseases of the Ovaries.

§ 1. *Absence and Rudimentary Development of the Ovaries.*

The **absence of both ovaries** is quite a rare anomaly, and is ordinarily accompanied by an incomplete development of other portions of the genital organs. Sometimes it is united with complete absence of the uterus or the Fallopian tubes; sometimes the uterus is found but in a rudimentary state, as are also the vagina, the labia, the clitoris, and even the breasts.

In many cases we have seen the absence of the two ovaries produce a like effect upon the development of the entire body; many of the peculiar characteristics of the woman disappeared; the chin was covered with a beard, the voice became rough and masculine; the breasts did not develop at all; the pelvis evinced the form peculiar to the male sex; and there was no trace of menstruation, although the desire of the sexual relations might not be constantly abolished.

The **absence of a single ovary** is more frequent. Then it is ordinarily only the corresponding half of the uterus which presents a rudimentary development. Sometimes the kidney of the side where the ovary is absent descends into the depths of the pelvis. This anomaly may exist without the external genital organs at all participating; often even the menstruation has its regular course, and we know many cases of women who have conceived and given birth to children of both sexes, although after death the absence of one ovary has been discovered at the autopsy.

The **rudimentary development** of the ovaries is presented in two different forms. Either this organ has remained in the same state in which it existed in the fœtus, or it appears under the form of a very small and shortened tongue, from which the

Graafian vesicles are completely absent, or are but slightly developed; or, else the form of the ovary is normal, but it is small, flattened out, and contains but a very few vesicles. This rudimentary development of the ovary is ordinarily met with on both sides; still we have seen it many times in one ovary alone. In the first case we sometimes find an analogous anomaly coexisting in the uterus, of which we have already given a description; and those women who either menstruate not at all, or very slightly, are naturally barren. In the other case, the rest of the genital organs are all in the natural state, menstruation is not necessarily deranged, and repeated conceptions may take place, as we have been able to prove by the instance of a woman who had had six children, and at whose autopsy we found the right ovary perfectly developed, but the left exactly in the fœtal state.

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§ 2. *Atrophy of the Ovaries.*

The atrophy of the ovaries is sometimes the consequence of the senile process which affects all the genital organs; sometimes it appears in a less advanced age, either alone or combined with that of the womb.

An atrophied ovary is smaller in all its dimensions, and it appears in the form of a shrunken fibrous mass, in which the ovarian vesicles are not met with, or only in a very limited number, and indeed are often themselves transformed into cysts. The surface of the organ is unequal, wrinkled and traversed in its whole length by furrows like those of the brain. The tissue is dry and very anæmic. With the exception of the senile

atrophy of the ovaries, it is impossible to give a sufficient explanation of the cause of this metamorphosis. When it affects both ovaries, it is an inevitable cause of sterility, which it is impossible to diagnosticate, and for which in consequence there can be no question of treatment. Indeed, therapeutic measures would be perfectly fruitless, on account of the serious character of the alterations of the organ.

§ 3. *Hypertrophy of the Ovaries.*

See " Chronic Ovaritis " on p. 400, and the following.

§ 4. *Deviations and Hernias of the Ovaries.*

The ovary often undergoes various displacements, either in the course of its own affections, or of those of the neighboring organs, and especially by the enlargement or the deviations of the uterus. Their importance is however always subordinate to that of the primary disease. Furthermore, we have frequently mentioned the resulting deviations, and it will not be necessary to make here any new remarks upon this subject. A few words upon the hernia of the ovary certainly will not be out of place.

Hernias of the ovary are generally a congenital affection. It is usually in inguinal hernia that the ovary is found; still this organ has also been met with in crural, ventral, vaginal hernia, as well as in those of the infra-pubic foramen and of the great ischiatic notch. Sometimes the ovary is accompanied by a portion of the intestine or omentum; sometimes it is alone in the hernial sac. The etiology of these deviations is still very obscure, especially in those cases where the ovary has penetrated by openings at a distance from its normal position. We do not wish to enrich medical literature with new hypotheses on this subject; we will therefore simply add that we regard as malformations the majority of those hernias of the ovary, the origin of which cannot be explained.

The cases collected up to the present time suggest the following conclusions, which are not without importance in a diagnostic point of view:

The pain which accompanies these hernias extends from the place of strangulation to the uterus, and if, with the point of the finger introduced into the vagina, we impress upon the womb a movement a little strong, we can perceive this movement transmitted to the contents of the hernia. In the unilateral ovario-inguinal hernia the fundus of the uterus is slightly inclined to the side of the hernia, and Seller has observed that the pains in the hernial sac increase, and are accompanied by a sensation of traction and tension when the patient is laid upon the side opposite to that affected. Churchill affirms that ovarian hernias sometimes augment in size, and become painful to the touch during menstruation, by reason of the congestion which takes place in the ovary; and this sign, if it can be really determined, would be very important for the diagnosis. [We have seen one marked case of this character, where, in a woman emaciated by phthisis, the right ovary had increased to the size of a small orange during each menstruation, and was also exquisitely sensitive upon the slightest pressure. Both of these symptoms subsided with the cessation of the periods, the ovary still remaining in the inguinal region.] We think, however, with Kiwisch, that the increase in the volume of the ovary, which precedes and accompanies menstruation, will rarely be so considerable as to be perceived through the hernial sac.

Some cases are recorded of strangulated ovarian hernias. There is developed in them, according to Meissner, at the end of a certain time, an inflammation, which ends in suppuration, or is followed by a very extended peritonitis. Lassus, in a similar hernia, observed an abscess in a girl of four or five years, and Balling states that he has seen an entire destruction of the ovary; the pus flowed out and the patient got well. Boivin and Dugès express the fear lest ovarian hernia, if it is not inevitably followed by sterility, may give rise to an extra-uterine pregnancy; still, up to the present time, there exists no fact upon which to support this hypothesis.

In a recent and still movable ovarian hernia, the taxis and a proper bandage would be doubtless the best **treatment.** But if the taxis does not succeed, and the hernia be the seat of severe pain, or reiterated inflammations, we might, as in the

cases recorded by Pott and Deneux, open the integuments and extirpate the ovary. Meissner prefers, in cases where the taxis will not completely succeed, to reduce all that is reducible, then to retain the whole by a well-adapted bandage, hoping by this means to develop adhesions with the neighboring parts, and thus to obtain a radical cure.

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§ 5. *Inflammation of the Ovaries.*

The catamenial congestions, the anatomical characteristics of which we have above described, often attain such an intensity that they present all the symptoms of an inflammation of the ovaries. In analyzing a great number of facts, in which all the signs observed during life, as well as those given by autopsy, demonstrated the presence of an ovaritis, we are compelled to recognize that in the greater number of cases we must seek for the cause in some disorder of the menstruation. All the causes which augment the catamenial hyperæmia of the genital organs, or maintain it there at a high degree during a prolonged period, play a great part in the etiology of the affection under consideration. A cold taken during menstruation, the suppression of the courses, coitus during or immediately after this epoch, the use of violent emmenagogues, pediluvia or hot baths at the same period, are the principal causes likely to produce ovaritis, in the absence of the gravid or the puerperal state. Often these various causes exert their injurious influence primarily upon other organs, in the number of which we find, in the first place, the uterus; and thus we often find an acute or chronic metritis, a hypersecretion of the mucous membrane of

the uterus and vagina, lasting for a period long enough for the production at length of all the indubitable characteristics of an ovaritis.

In an anatomical point of view we may rightly distinguish these varieties of ovaritis, according as the inflammation affects the bladder, the proper tissue of the ovary, or its peritoneal envelope, from whence there results a **follicular,** a **parenchymatous,** or a **peritoneal ovaritis.** However, we must not expect frequently to find at the autopsy any one of these forms completely isolated, or uncomplicated with one of the others. Thus the inflammation of the vesicles extends almost always to the surrounding parénchyma, and the parenchymatous ovaritis is almost always followed by an effusion into the Graafian vesicles, and when these two forms of inflammation have attained to a high degree, there is united with them almost inevitably an exudation upon the surface of the peritoneal envelope of the ovary.

Before describing the anatomical characteristics of inflammation of the ovaries, we ought to observe that they differ essentially, according as the patient has succumbed a longer or shorter time after the establishment of the affection, and as the symptoms which are observed during life vary in the same manner, according to the periods of the disease, we are certainly correct in dividing our description into two chapters, the one of which shall embrace **acute,** and the other **chronic** ovaritis.

A.—*Acute Ovaritis.*

Pathological Anatomy.—We have had but a single opportunity of studying non-puerperal acute ovaritis upon the cadaver. The woman had succumbed to a pneumonia, the consequence of a cold. During the last days of her life she had complained of many symptoms, pains, etc., which made us infer the presence of circumscribed peritonitis in the neighborhood of the right ovary. The autopsy demonstrated in the pelvis to the right of the uterus a mass of coagulated fibrin of the size of the fist; easily separated from the subjacent organs, and which evidently was the result of an effusion. On removing it, the ovary was met with, which had a longitudinal diameter of $2\frac{1}{2}$ inches, while the transverse diameter was

$1\frac{3}{5}$ inch, and the thickness of the organ $1\frac{3}{10}$. The ovary had an ovoid form; it was considerably enlarged, as indeed its volume indicates. Its surface was of a violet blue, covered with numerous dilated veins, and toward the internal angle of the posterior face, was observable, by the blackish red discoloration, the place of an ovarian vesicle which had burst a short time previously. The consistency of the organ was doughy, almost fluctuating in some parts. On cutting it, there flowed forth a considerable quantity of blood, and the section showed the same violet color, with some highly engorged veins. The vesicle in question, on which the place of rupture was perfectly recognizable, was of the size of a pea; it still contained in its centre a little liquid and black blood, while a tolerably thick layer of fibrin lined the walls. Two neighboring vesicles had almost the same dimensions, and made a slight projection above the surface of the ovary, and on opening them, a serous and sanguinolent liquid escaped. Near the other extremity of the organ, where the congestion was less severe, the coat was of a less intense red and the consistence a little less firm, and there was found in the parenchyma itself an abscess of the size of a bean, containing a sanious pus, mingled with blood. By the side of this abscess were found smaller ones, varying from the size of a grain of millet seed to that of a small pea; all were located quite deeply in the parenchyma, and also contained a sanious pus. The entire tissue was infiltrated with serum, and the majority of the vesicles were visibly enlarged by an excessive accumulation of liquid.

The pathological alterations which we have met with in this ovary correspond perfectly to the description which some authors have given of acute ovaritis; considerable increase in the size of the organ, notable hyperæmia, traces of effusion in the vesicles, purulent foci in the parenchyma, and fibrinous exudation under the peritoneal envelope of the organ. After what precedes, it may be seen that in this case we had a combination of the three forms of ovaritis, which confirms our assertion on the subject of the rarity of its existence in an isolated form.

Symptoms.—The symptoms of acute ovaritis are very variable, and this fact does not facilitate the diagnosis. While

sometimes it commences with a course of very intense febrile symptoms, chills, followed by heat, acceleration of the pulse, etc.; at other times we find all these signs absent, and the pain in the region of the ovaries is the only symptom which indicates to the physician the possibility of such an affection. But the pain also varies as much in quality as intensity. We have observed many cases in which the progress of the disease left no doubt of the nature of the affection, and still the pain was at the outset very moderate. The patients simply complained of a disagreeable sensation of weight and smarting in the neighborhood of the affected ovary, accompanied by neuralgic pains in the corresponding inferior extremity, a painful defecation, and frequent desire to urinate. At other times the pain was intense at the beginning, or else it attained, during the course of the disease, to such a degree that the lightest touch upon the abdomen was insupportable, and every movement of the body augmented the pains. It remained then rarely limited to the region of the ovaries, but spread more or less to the neighboring parts, so that not only the touch upon the hypogastrium was almost insupportable, but also the uterus, the vagina, the urethra, etc., were affected with hyperæsthesia. In such a case it is right to conclude that the inflammation is transmitted to the womb, to the bladder, and to the peritoneal envelope of the organs of the pelvis, and often by palpation and percussion we may recognize the effusion which has taken place into the peritoneal sac. The alteration of the inferior segment of the uterus will demonstrate the existence of a metritis, and the pains which accompany the emission of urine, as well as the character of this liquid, will indicate a catarrh of the bladder and urethra. It is unnecessary to say, considering the situation of the pelvic organs, that a too great accumulation of fecal matters in the cæcum will augment the pains of ovaritis of the right side, while the movements of the rectum in defecation will have the same influence on that of the left side.

Neither internal nor external exploration furnish certain signs for the diagnosis of parenchymatous and follicular ovaritis, as the ovary never presents in these forms of the disease dimensions sufficiently considerable to be recognized through the abdominal walls or by the vagina. And when

besides the symptoms indicated above, a tumor is recognized in the region of the ovaries, it is certain to have been produced, unless in rare exceptional cases, by an effusion solidified around the ovary. It may thus be seen that a peritoneal ovaritis is the only form accessible to palpation. But as in this part of the peritoneum effusions are met with completely independent of an ovaritis, the diagnosis of this latter malady will not be justified except when the commémorative signs shall suggest as one of its causes some disorder of the functions of menstruation; when we have no reason to infer the existence of peritonitis; and when, from the outset, the position of the tumor has corresponded to that of the ovary.

Let us say in terminating that when an ovaritis comes on during menstruation, the courses are sometimes suddenly arrested, while at other times, they become excessively abundant, or finally, they may undergo no alteration.

Termination.—When acute ovaritis appears in a woman otherwise in good health, we can ordinarily, by proper treatment, obtain a complete cure so far at least that the woman shall never feel during the remainder of her life any pain which she can refer to this anterior affection. We would not wish to affirm, however, that the ovary and its envelope are restored to their original condition. On the contrary, the autopsy has often demonstrated that an induration of the ovaries or adhesions to the neighboring organs might subsist for years without any symptom making it suspected during life. But these results of the autopsy being always the result of inflammation of the ovaries and of the neighboring organs, we may conclude that an ovary that has once been the seat of an inflammation of which no symptoms remain, sometimes, however, undergoes important modifications in its structure liable to produce insurmountable obstacles to a regular ovulation and consequently to conception.

These modifications accompany especially chronic ovaritis, a description of which we shall give in the following pages.

Another important termination of acute ovaritis is the formation of an **abscess** and the purulent decomposition of the tissue of the ovary, and this is so much the more dangerous as the effusion which envelops the diseased ovary may itself undergo

a like decomposition, and bring on a general peritonitis, which is not long in becoming fatal. Or, indeed, when this does not take place, it makes perforations into the neighboring organs (rectum, vagina, uterus, bladder, abdominal walls,) which are transformed into fistulas and a fistulous abscess which obstinately resists all the means employed to cure them and which at length cause the death of the patients, either by purulent infection or by marasmus. It is most frequently as a consequence of puerperal ovaritis that such accidents are met with. Siill they have also been observed after idiopathic ovaritis, and our own practice has furnished some instances of this kind. [In the only case which has come under our own observation, the patient was a girl of some 22 years of age, and had taken cold about the time of her menstrual period. The disease progressed in spite of all treatment, and she died very suddenly, as was demonstrated afterward, from peritonitis, in an hour after the rupture of one of the abscesses of the ovary into the peritoneal cavity. The autopsy showed that both ovaries were completely disorganized—one was ruptured and a quart of pus had escaped therefrom; the other was yet entire and contained by accurate measurement ʒxv. of pure, healthy pus.] We shall see, in speaking of ovarian tumors, that acute inflammation of the ovaries is a frequent cause of the development of the various tumors which are met with in these organs.

Treatment.—Antiphlogistic medication plays the most important part in the treatment of acute ovaritis; and local blood-lettings serve not only to moderate the pains, but to prevent the formation of new effusions into the tissue of the ovary or its surroundings. It is unnecessary to say that the application of leeches to the vaginal portion and to the cul-de-sac of the vagina will more quickly and more surely attain the desired end, than blood-lettings through the abdominal walls, and the first of these procedures is the more preferable as the ovaritis is frequently accompanied by a hyperæmia or even an inflammation of the womb. We must, further, recommend the use of heat in the form of cataplasms, baths, and injections, for it is not only one of the surest narcotics, but it also favors the liquefaction and the re-absorption of the effusion. Internally, we give the preference to gentle alkaline laxatives, or to nar-

cotics when the pains demand them. As to hygiene, we especially insist upon the necessity of removing from the patient everything which, being likely to produce an excitation of the genitalia, might occasion a congestion toward these organs.

B.—*Chronic Ovaritis.*

Pathological Anatomy.—Chronic ovaritis is primarily characterized by a sensible change of form in the affected ovary, the contour of which becomes irregular, the surface being bosselated, mammillated, and its consistence much harder than in the normal state. This induration results from the hypertrophy of the parenchyma which is formed during the course of the disease and which itself proceeds from the transformation of the effusion into cellular tissue. In consequence of the superabundance of the latter, the true glandular parenchyma of the organ disappears little by little; and then the cicatrical retraction which supervenes during the organization of this newly formed tissue, gives to the surface of the organ the irregular and bosselated aspect of which we have spoken. Perhaps it may result from a partial, considerable, and almost cartilaginous thickening of the proper tunic of the ovary. Very properly, Henkel (says Virchow) compares this state of the ovary with the chronic inflammation or the interstitial hyperplasia of the conjunctive tissue of other glands, for example, the cirrhosis of the liver and the lungs, the different forms of granular degeneration of the kidneys, etc., and considers this state as a cirrhosis or a granular degeneration of the ovary. After having undergone the alterations which we have described, the tissue of the ovary is rarely hyperæmic, and if sometimes considerable quantities of blood have been discovered in the vessels, they were ordinarily limited to some points of the organ and were especially met with in the neighborhood of great follicles which were filled with new blood, or had undergone some transformation. The thickness of the proper tunic of the ovary as well as the hypertrophy of the tissue surrounding the vesicles prevents their bursting, so that the ovum might escape from their cavity. The ovum perishes in the blood effused in the vesicle, which itself, with its contents, undergoes the transformation observed in the yellow bodies. In many ovaries which we have personally

examined, we have plainly recognized that the bloody effusion took place not only in the interior of the vesicles, but also in their immediate neighborhood, and it seems to us indubitable that the friability of the tissue which sometimes accompanies chronic ovaritis is an important cause of the affection known by the name of apoplexy of the ovary.

We shall endeavor to demonstrate hereafter, that chronic ovaritis is a very important cause in the production of ovarian cysts, and we will only mention *en passant*, that in ovaries affected with chronic ovaritis, we frequently meet with dilatations of the Graafian vesicles forming cysts more or less large.

Coincident with these alterations in the tissue of the ovary, adhesions are frequently met with between the peritoneal envelope of the organ and the neighboring parts. These are attended sometimes with deviations of the ovary, with hyperæmia of the tubes, broad ligaments, the womb and vagina, and ordinarily with a hypersecretion of the mucous membrane of these organs.

Etiology.—Chronic ovaritis is sometimes of course the consequence of the acute form. Hence, in enumerating its causes we might recognize all those which may produce the latter. It is also sometimes united to a chronic inflammation of the uterus and its appendages. We have also observed many cases where it was developed in consequence of an inflammation of the neighboring intestinal canal, and especially of the rectum. The dysenteric affection of the mucous membrane of the colon has especially a great influence here. We know also that immoderate coitus, as well as the employment of unnatural means to satisfy the venereal appetite, often causes the disease in question, which explains why these alterations of the tissue of the ovary are seen so frequently among prostitutes. When old maids have exhibited like results, we should not conclude that abstinence from venereal pleasures can also cause this disease, for it is they especially who have recourse to unnatural methods. Finally, we should add that chronic ovaritis sometimes is found after puerperium. In this case the probable cause is the continued hyperæmia of the ovary during gestation and confinement. Finally, a genuine acute puerperal

inflammation of these organs may have marked the commencement of the disease under notice.

Symptoms.—When chronic ovaritis has been preceded by a similar acute affection, we see some changes in the symptoms mentioned as characteristic of the latter. The febrile movement disappears, the pain in the region of the ovaries, at first so intense, gives place to a sensation rather disagreeable than painful.

It is this disagreeable sensation which calls the attention of the physician to the possibility of a disease of the ovaries, when there has not been an acute period. The patients complain of an inconvenient weight in the diseased spot, which increases when touched, when walking, by remaining too long standing, by coitus, and especially at the menstrual period. In the rarer cases, it is an intense, continued pain, sometimes burning, sometimes pricking in the region of the diseased ovary, which many of our patients describe as limited to a surface scarcely four-fifths of an inch square, and compare the pain to that of a hot coal situated in the pelvis. At other times the pain radiates to a distance, and at the same time cramps are observed in the neighboring organs. There often results therefrom a frequent need of urinating, painful constrictions of the vagina, uterine colics, a very painful tenesmus, together with the formation of hæmorrhoidal tumors, etc. It is not rare to observe in the course of the affection, neuralgia in the extremity corresponding to the seat of the disease.

Most frequently we meet with various disorders in connection with the menstruation, without our being always able to comprehend why the courses are sometimes nearly or quite suppressed, while at other times they are much too abundant; as the disease very often affects one ovary alone, the courses are not necessarily accompanied every time by dysmenorrhœal phenomena; we even see the catamenial flow occur two or three times without particularly painful sensations, which suggests the inference that the matured ovum at these periods belongs to the healthy ovary. At other times each menstruation is accompanied by a violent dysmenorrhœa, and then either both ovaries are diseased, or although the descent of the ova proceeded from the healthy organ, the general hyperæmia of the pelvis, which accompanies this work of ovulation, affects in a

high degree the diseased organ. After a long duration of the disease, the digestion and the hæmatogenesis are at length so much affected that the symptoms of anæmia are rarely absent in these diseases. The constitution of the blood, sooner or later, causes disorders in the nutrition of the nervous system, and the unnatural excitability which results is frequently manifested in all the symptoms of hysteria.

Diagnosis.—The most important fact in the diagnosis of chronic ovaritis is always the pain of which we have spoken above, which is limited to the region of the ovaries, or at least radiates from thence. When there has not been an abundant exudation in the neighborhood of the ovary, it will not be easy to recognize the presence of a tumor by the palpation of the abdomen or the vaginal touch. For ourselves, we have never succeeded in it, and whenever we have ascertained an increase in the volume of the ovary, the subsequent progress of the disease showed that we had not to do with an ovaritis, but with one of the tumors which we shall consider hereafter. Furthermore, the presence of a considerable effusion prevents us from ascertaining whether or not there is an augmentation in the volume of the ovary.

The **diagnosis of chronic ovaritis** then is not possible, except by the exclusion of the other affections of the organs of the pelvis, which present analogous symptoms; and the presence of an ovaritis cannot be inferred, except when an attentive examination has demonstrated that no affection of the uterus, vagina or bladder, etc., exists, capable of producing the symptoms which are under observation. The certainty of the diagnosis still increases when the pain located in the region of the ovaries continues for a long time; also when it exhibits exacerbations a little before and during the course of menstruation, and finally, when the vaginal cul-de-sac of the diseased side is very painful to the touch.

Although the diagnosis of a chronic ovaritis cannot present the same precision and the same exactitude that we may demand for the other affections of the genital system, an error will be very difficult, provided that the physician has had some experience, and is willing to take the pains to examine the patient carefully, and for a sufficiently long time.

Termination and Prognosis.—The most frequent termination of chronic ovaritis is the hardening and atrophy of the parenchyma, with a more or less extended destruction of the vesicles. When the disease affects both ovaries, and when it terminates as we have just indicated, there results not only an incurable amenorrhœa, but also a complete sterility. The exudations which, in the course of the disease, take place in the isolated vesicles, are not without importance, for they are frequently the starting point for the development of cysts of the ovary, so disastrous to the health of women. A more rare termination of chronic ovaritis is that by suppuration. We have only observed this a few times, and in every case the autopsy led us to believe that the abscess was formed, as we have above stated, in consequence of sanguineous extravasation into the parenchyma.

The sanguineous extravasation determines around itself the formation of an exudation, which may undergo putrid decomposition, that attacks the blood also. Thus it happens that we find in the cadaver an abscess, the cavity of which is filled with pus, with discolored and decomposed blood. The pus or this ichorous matter succeeds in opening a passage into the abdominal cavity. Hence the necessary result is a peritonitis, which is often the cause of death; but when the perforation takes place exteriorly, most often by the rectum, more rarely by the vagina and the abdominal walls, we then find an interminable purulent flow, which consumes finally the strength of the patient.

Treatment.—The local treatment of chronic ovaritis consists in derivatives, or means which stimulate the absorption. These are local blood-lettings, sinapisms, vesicants, and the application endermically of narcotic medicaments. We have never obtained satisfactory results from mercurial and iodine ointments, advised by so many authors, while we warmly recommend the prolonged application of emollient cataplasms, as well as the use of hot baths or hip baths of natural or artificial sea-water. Finally, it is unnecessary to say that the end is more easily attained when the patient has the means to visit the baths of Kreuznach, Reichenhall, or Krankenheil, etc.

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§ 6. *Apoplexy of the Ovary.*

Every catamenial congestion is accompanied by a slight effusion of blood into the cavity of the Graafian vesicles. But when this congestion has attained a very high degree, when it is sudden, or especially when the tissue of the ovary and the walls of the vessels have been altered and break easily, a more considerable effusion may result. These hæmorrhages take place either, as is the case most frequently, in the cavity of the vesicles, or the blood spreads into the parenchyma of the organ. It is not rare to meet with a vesicular apoplexy of the size of a cherry; but the more abundant effusions, sanguineous collections of the size of a walnut, are much more rare. We have even seen a case where the blood-clot was as large as an orange. Where a small hæmorrhage takes place into the cavity of the vesicles, the blood undergoes its usual transformations, and then at the autopsy the blood is sometimes liquid, sometimes coagulated, and sometimes of a rusty color, containing clots of fibrin. But when the effusion has been very abundant, and when a considerable time has elapsed between its formation and the death of the patient, there often remains nothing except a more or less voluminous fibrinous tumor. Very considerable hæmorrhages sometimes determine to the surface of the peritoneum which covers the ovary, an abundant exudation, which finally envelops it more or less completely. This exudation may at last undergo a purulent transformation, and conjointly with the blood with which it is mixed may open a passage exteriorly through a neighboring organ, and especially the rectum. Cases are also on record where a considerable bloody effusion, resulting from a rupture of its walls, spreads into the abdominal cavity, and produces death by the continuation of the hæmorrhage, or by causing a fatal peritonitis. We ourselves observed a similar

case in 1845, in a young girl of eighteen years, who died suddenly during menstruation, with all the signs of an internal hæmorrhage. The autopsy demonstrated in the right ovary, which was slightly amplified, a pocket of the size of a pullet's egg, filled with coagulated blood, in the posterior wall of which was found an opening of nearly nine-tenths of an inch long, through which nearly seven pounds of blood had penetrated into the abdominal cavity.

The parenchymatous hæmorrhages are rarely very abundant, and the most considerable that we have seen scarcely attained the size of a cherry. We do not know any case terminated by a death like that which we have just described. It would appear, on the contrary, that the effused blood is always reabsorbed, or transformed into a small fibrous body.

The **diagnosis** of an apoplexy of the ovary appears to us impossible, for it frequently is not accompanied by any particular or very striking morbid phenomena, and in cases where any are noted, it is impossible to distinguish them from those which would cause an acute ovaritis, or a peritonitis limited to this region. One might infer the rupture of a sac containing a considerable sanguineous effusion, when, as happened in the cases described above, we find that in a woman just menstruating, a sharp pain comes on in the region of the ovaries, with symptoms of an internal hæmorrhage. We will, however, observe that we have met with all these symptoms in a case where the cause of death was the rupture of a varicose vein, situated between the folds of the broad ligament.

Seeing the uncertainty of the diagnosis, the **treatment** could be but symptomatic. We should limit ourselves to the combating of the local pain by blood-lettings and narcotics, or indeed when we see the symptoms of anæmia appear, we may order the local application of cold, together with a bracing treatment.

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§ 7. *Tumors of the Ovary.*

In a practical point of view we may separate tumors of the ovary into two classes—those which in their interior have cavities, more or less large, and those which are formed by a compact and solid mass. To the first class belong the simple or multiple cysts, the cystosarcomata, the colloid and cystocarcinomata; while the second class comprehends fibrous bodies, the enchondromata and cancerous tumors without cavities.

We are about to consider separately the anatomical peculiarities of each of these tumors. In a clinical view, on the contrary, we will comprise them in a single chapter, because often it is not possible to distinguish at the bedside of the patient the different forms with the same certainty and same precision which can be attained at the autopsy.

Pathological Anatomy.—A. **simple cysts** are formed in consequence of an abnormal augmentation of the liquid contained in the Graafian vesicles; hence it is not without reason that this affection has been designated as dropsy of the Graafian vesicles. The starting-point of this increase of liquid is almost always a more or less prolonged hyperæmia of the ovaries. This hyperæmia, as may be easily understood, is communicated to the walls of the vesicles, and is thus the cause of the hypersecretion which takes place upon their internal surface. But, in order that the liquid thus secreted may remain in the Graafian vesicle, it is necessary that the rupture of the walls of the latter be rendered impossible in consequence of an hypertrophy. If this does not take place, the hyperæmia in question and the collection of liquid which results will always produce a rupture of the vesicle, resembling that which we have above described as one of the physiological phenomena of menstruation.

This abnormal thickening of the wall of the vesicles, which prevents their rupture, may be the consequence of a malformation of the ovaries, peculiar to the patient affected, or it results from the same hyperæmia which was the cause of the hypersecretion. In support of the first opinion, we will state that we have often examined ovaries showing an encystic dropsy of several vesicles, on which, although the women from whom they came had regularly menstruated during their life, we

could not recognize any trace of the rupture of the vesicles, or, if some cicatrices were found, they were very rare in comparison with the frequency of menstruation. If we add to these anatomical statements the fact that all these women were sterile, we shall recognize that it is more than probable that, notwithstanding the regularity of the unnatural congestion, the rupture of the ovarian vesicles did not take place, and that thus conception was rendered impossible, while, on the other hand, this same congestion was the cause of the menstrual hypersecretion of the vesicles. But the catamenial congestion existing with its normal intensity without, however, causing the rupture of the ovarian vesicles, we must seek for a reason in a greater resistance of the wall of the vesicles, and, consequently, in an anterior thickening.

But a congestion and a hyperæmia may also have the same consequences, for **vesicular dropsy** is almost constantly observed as a consequence of chronic ovaritis, and we know besides, that a complete amenorrhœa, or a menstruation either scanty or returning at widely separated periods, often precedes the formation of simple cysts of the ovary. We have already sought above to demonstrate that, notwithstanding the amenorrhœa, the periodic maturation of the ovum might take place, and that, in spite of the absence of a sanguineous flow from the genital organs, we might often recognize this state by many symptoms which ordinarily accompany the descent of the ovum. But even the absence of the catamenial flow is, in such a case, an indubitable proof that the congestion of the organs of the pelvis has not attained the degree necessary to cause the rupture of the vessels. This being so, it is unnecessary to state that the relatively feeble hyperæmia of the ovaries will produce but a very slight increase of the contents of the vesicle containing the matured ovum, and that this augmentation will be the less able to cause the rupture of the vesicular wall as the latter is more resisting and thicker in consequence of this hyperæmia. The vesicle, although containing a greater quantity of liquid, rests intact; the secreted liquid solidifies, and thus leads to a final thickening of the walls. And, when the catamenial congestion appears anew with the same relative feebleness of intensity, the contents still increase, the thickness of the walls becomes

more considerable, and the amplified vesicle projects more voluminously upon the surface of the ovary.

It is needless to say that the same phenomena can be reproduced in many of the vesicles of an ovary, and we cannot see why they may not exist successively in both ovaries. In fact, many observations demonstrate the truth of these hypotheses, for we frequently meet with encysted dropsy of several, often even of a very considerable number, of the vesicles of one of the ovaries, and sometimes we even see this affection attack both organs.

So long as the cyst has not rapidly attained a considerable size by the rapid augmentation of its contents, we shall always find the walls much thicker than those of an ovarian vesicle in a normal state. Their tissue is of a fibrous nature and the internal surface is covered with a layer more or less thick of pavement epithelium. It is ordinarily in vain that we seek for the presence of an ovum in a like dropsical vesicle.[1] Still, Rokitansky[2] has latterly, in a similar case, recognized with certainty, the existence of an ovum in all the vesicles which had not surpassed the size of a bean, and he has thereby proved in a most certain manner the possibility of the existence of a dropsy of the ovarian vesicles.

When the dropsy affects a single vesicle only, the rest of the organ may undergo no alteration in its texture; still, we more frequently see a great number of these vesicles changed into serous cysts. In that case one of them very much exceeds the others in size, and attains even the dimensions of a man's head; or else the development of the cyst is tolerably equal, so that the whole ovary is changed into an organ formed by ten, twenty, or a larger number of cysts of the size of a pea, a bean, or a filbert. When the cysts are very numerous and very close to one another, they mutually flatten and at length assume the angular and polyhedral form of biliary calculi. Often in such cases, the two surfaces of the cysts which touch are united together, the wall which separates their cavities is atrophied in consequence of the pressure exerted upon it by the liquid, and either totally or partially disappears, so that the two little cysts

[1] Cruveilhier, Anatomie Pathologique, avec planches, 5th livraison.

[2] Wiener Wochenbl. 1855. No. 1.

are thus transformed into a common cavity of greater size. When, in consequence of the rapid increase of its contents, one of the cysts is developed more than the others, the walls are so thinned that it bursts under the influence of the slight traction which is necessarily exerted upon it on its removal from the cadaver. At other times, on the contrary, in consequence of repeated hyperæmias, and of the exudation on the surface of its peritoneal envelope, the wall of such a cyst may attain the thickness of two to three lines. The abundance of both venous and arterial vessels, but especially of the latter, is then very remarkable. It often happens, when the dilatation of the wall of the cyst takes place somewhat suddenly, that the vessels burst, and that a more or less considerable quantity of blood is sprinkled into the cavity of the cyst. The most voluminous cysts contain, in consequence of these hæmorrhages, sometimes a limpid, serous, or sanguinolent liquid, sometimes a viscous, brownish, or even blackish mass. In the smaller cysts, it is not rare to find, after similar ruptures of the vessels, discolored clots of blood of a reddish brown, invested with a layer of pure fibrin, while in the deep layers, we find fibres of fibrin interlacing each other in every direction, as well as numerous conglomerations of pigment, corpuscles of blood, which are either colorless or at least discolored, and contain fatty nucleoli. The superficial layer of fibrin of which we have just spoken, often adheres in the form of a false membrane to the internal surface of the wall of the cyst, and thus contributes to render it more thick; still, such false membranes may also be the result of an exudation.

In the interior of these cysts with hypertrophied walls, neoplasms are sometimes seen, which, in the form of numerous papillæ, more or less voluminous, at length fill up the cavity completely, and as it were transform the cyst into a solid tumor. At other times these papillæ are themselves transformed into new minute cysts, and thus by an endogenetic development of the cysts, the simple cyst becomes a multiple cyst.

B. While, in the majority of cases, the cysts which we have described in the first paragraph, *A*, result from the excessive development of the Graafian vesicles, the **multiple cysts**, on the contrary, depend on a particular specific alteration (of

which we are about to give the description) of the tissue which constitutes the normal parenchyma of the ovary. The lamellæ of the connective tissue which form this parenchyma adhere, in fact, one to another, in more or less considerable numbers, and thus form completely closed capsules, which, as they do not exceed a certain volume, are flattened at many points by their reciprocal contact, thus inclosing many-sided cavities. The transformation of these cavities into true cysts may then be accomplished in many ways.

Sometimes one of the capsules in question is developed more than all the others, and forms a true cyst, much exceeding in surface the rest of the tumor. In its turn it contains within its walls the germ of new secondary cysts, which are soon developed, either in their own walls or in the primary tissue of the tumor, and which from small simple cavities, sometimes acquire at length such dimensions that they completely fill the primary cyst; sometimes these secondary cysts are not developed except at certain points of the wall of the primary cyst, thus forming a tumor having either a broad base or a pedicle, and projecting into the cavity of the latter. But this tumor itself contains a tissue in the meshes of which are formed tertiary cysts, and this new generation of cysts hastens the development of the secondary cyst which soon completely fills the cavity of the primary cyst. Or it may, indeed, happen that in the latter several secondary cysts touch each other, and their walls adhere together. It then becomes very difficult, if it is not completely impossible, to determine by examination of the anatomical specimens the manner of the development of the different cavities of such a tumor.

It is quite rare to see the cells which have been developed in the walls of the primary cyst project into the cavity of the latter in the form of well defined porous excrescences. It is much more rare to see the internal wall of the cyst invested throughout with such a porous reticulated tissue, the orifices of the cells looking from the side of the cavity of the cysts. In such cases also we meet with papillary excrescences of very varied forms, with broad or pediculated bases, and even sometimes forming voluminous tumors, composed of numerous vessels, surrounded with connective tissue, which even sometimes perforate

the wall of the cyst which contains them. Sometimes, indeed, there are new cysts formed in the interior of these papillary excrescences, which then take an elongated fusiform shape. Sometimes, also, we find at the summit of these excrescences little cysts of the size of a grain of millet, a pea, or a bean, the contents of which vary much.

Accordingly, as the cysts in question, the reticulated tissue in which they are developed, or the papillary excrescences of the walls contain a serous or sanguinolent liquid, or a fatty, colloid, or medullary substance, we distinguish the composite cysts into colloid tumors, properly so called, and the cysto-carcinomata.

The true composite cysts contain in their cavities a liquid which is either purely serous or mingled with a little blood, the result of the rupture of the vessels in their interior. In rare cases, but usually in a few isolated cavities only, we find in cysts of this character, a mass of fat, of hairs, of cartilage, bones or teeth. We should add here that in such tumors the contents ordinarily vary in different compartments, and it is not rare to meet in a single multiple cyst all the various substances which we have mentioned. The fatty accumulations which are so often found in these organs are caused by the excessive development of the layer of cells, of pavement epithelium cells which is frequently found on the internal surface of cysts. The fat which forms them is most often liquid, of an orange or bronze color; sometimes, however, it forms clots of solid, yellow fat, ordinarily containing a considerable quantity of cholesterine. The **hair** which is often found in these fatty cysts is variously colored and entangled, so as to form cushions of greater or less thickness. They have their roots in the wall of the cyst provided with sebaceous follicles, or in the layer of the epidermis, which, as we have said, sometimes covers this wall. The **teeth** which are sometimes observed in certain isolated cavities of the tumors in question, are developed in the interior of the wall of the cyst, in the usual dental sac, and sometimes their abundance is such that cavities are seen filled with teeth, loose and free from adhesions.

The **bony material** proceeds from the ossification of the cellular tissue of the walls of the cyst; they are sometimes long

bones, sometimes flat bones, but they have no resemblance to any bones of the skeleton. The most frequent seat of the **cartilaginification** is in the papillary excrescences which, as we said above, occupy the internal wall of the cysts; but it is in general more rare than ossification.

The multiple cysts of the ovary attain very various dimensions; at the end of several years they sometimes scarcely attain the size of a goose's egg, or of a fist, while others in a few months attain the size of the uterus at the close of gestation. In the latter case only a few isolated cysts are ordinarily found, which have such a rapid development; and on the dependent portion of the tumor a considerable number of little cysts, of the size of a grain of millet, a pea, bean, or pigeon's egg, are often found, retarded, as it were, in their development, while at the superior portion we find cysts of the size of a man's fist, or even larger. Finally, in these composite cysts, some portions have occasionally undergone such an alteration in their structure that we must consider them as true colloids, sarcomas or cancers.

C. The **colloid tumors of the ovary** (gelatiniform alveolar cancer) result, according to the researches of Virchow, from the development in the parenchyma of the ovaries of little sacs filled with a **gelatiniform mass,** their walls being covered with a tolerably thick epithelial layer. The volume of the ovary continually augments in consequence of the constantly increasing quantity of its gelatiniform contents, and by the formation of new sacs; each alveolus develops toward the periphery, and thus takes the form of a cone, whose base is outward. The walls which separate the different sacs are by degrees atrophied, their cellular tissue disappears, and there only remains their layer of epithelium, which, during this time, has undergone a fatty degeneration, and the final result is the union of many of the primary alveoli to form a greater cavity, containing a collection formed of conical pieces, of a substance resembling gelatine. If such a tumor be cut, it at first seems homogeneous; but, on examination we shall find that the tumor is composed of a reticulated frame-work, forming cavities of various shapes, and filled with the gelatinous mass in question. It is in this frame-work of connective tissue that the

vessels circulate. This gelatinous matter seems, according to the correct and exact description of Virchow, traversed by parallel white and opaque lines that are also alike met with, on the surface of a second cut made perpendicularly to the first. This arrangement forms a net of numerous irregular and ordinarily polygonal meshes. The gelatinous mass is thus divided into a series of cylinders, prisms, or many-sided columns, situated by the side of one another. The whitish lines are formed by little opaque, angular bodies, pressed one against the other, and of a slightly granular appearance. In isolating one part from the remainder of the gelatinous mass, we sometimes recognize in it a regular agglomeration of fat globules and nucleated cells, while the other parts have preserved their angular form and vaguely granular aspect. It is more rare to find there simple cells and crystals of cholesterine. A singular fact is the presence of little, narrow bodies, like threads, crooked or straight, appearing to be of a cylindrical appearance, and much resembling elastic fibres. Virchow is inclined to consider them as crystals of fat resulting from the decomposition of cells.

Sometimes, but not always, the gelatinous matter softens and liquefies at some point of the tumor, which then seems to be filled with a liquid mass. The liquid itself is of a straw yellow or of a yellowish-grey color; it is flocculent, milky and viscous, and always has an alkaline reaction; it contains a considerable quantity of albumen or metalbumen, extractive matters not yet determined, and alkaline salts, especially chloride of sodium. The fatty degeneration of the epithelial cells which are mixed with it, is the source of all the fat and of the numerous crystals of cholesterine which are found therein.

The alveolar wall which lines the cavity filled with liquid, may become the seat of an albuminous or fibrinous exudation, which sometimes is deposited upon the walls, and there coagulates, while sometimes it is transformed into a purulent or septic matter. The blood which is occasionally mingled with the liquid contained in these tumors, proceeds from the rupture of vessels in consequence of the distension and dilatation of the walls, or, as Virchow admits, the hæmorrhage proceeds from vessels which have remained intact during the atrophy of the

alveolar walls, and which, undergoing then the influence of the softening which has taken place in the tumor, are easily destroyed, and thus pour their contents into the cavity.

Notwithstanding the exactitude and precision which Virchow, from whom we have in great part borrowed what precedes, has brought to the description of the development and the structure of the colloid tumors of the ovary, we cannot, however, share his opinion when he claims that all the composite ovarian cysts, even those which possess some more or less voluminous appendices, or those whose surface is covered with ridges and protuberances, result from various obstacles having prevented the development of a colloid tumor, and that all the varied forms are but different degrees of the same affection. According to his own statements, the reticulated frame-work and the gelatinous mass are the only characteristic signs of colloid tumors. But it results from what we have already said, and from what we shall see hereafter, that there are in the ovaries tumors completely without these peculiarities; and supposing Virchow's opinion true, we should be forced to say with Kiwisch, that there is an alveolar cancer without alveolæ, and a colloid cancer without a colloid mass. We ought further to add with Kiwisch, that contrary to the opinion of Virchow, it is not rare to encounter in the ovule small, multiple cysts, the contents of which do not resemble colloid either in a chemical or in a physical point of view, which would, however, be necessary if it were true that all ovarian multilocular cysts result from a gelatinous degeneration of these organs.

On the other hand, it should be observed that the colloid may accompany other ovarian tumors, as, for example, the composite cysts which we have above described, the cysto-sarcomas, and especially the medullary cancer. As to the form of the colloid of the ovary, it is generally rounded from the very smallest up to those which are of the size of the fist; but when the volume of the tumor is more considerable, some portions are ordinarily developed at the expense of others, and we frequently see the largest cavities on the superior portion of the tumor, while the inferior part is composed of a quantity of cells of the size of a millet seed, a pea or a walnut. These voluminous tumors ordinarily have an irregular form with several lobes;

they are retained in the pelvis by a broad and extended base, or by a narrow pedicle, and often present, in consequence of frequent peritonitis, numerous adhesions with the anterior abdominal wall of the other neighboring organs.

D. By the name **cysto-sarcoma** are designated ovarian tumors composed of cellular tissue, in the middle of which are formed more or less considerable cavities, partially filled with liquid; these are sarcomas accompanied by an encysted dropsy. They differ from composite cysts, which have been considered above, by the notable thickness of the walls which separate their different cavities, as well as by the fact that some parts of the tumor are completely without such cysts, and have fibrous structures, sometimes fatty, which characterizes the sarcoma. The cavities which are encountered in the cysto-sarcoma of the ovary, result either from the separation of the bundles of connective tissue, interlaced in all directions, which originally formed the tumor, or from the development of a membranous sac, inclosed at the beginning in the fibrous mass. Nothing up to the present proves the assertion of Kiwisch, that even in the sarcomata the Graafian vesicles may be the seat of an encysted dropsy.

Here, as in the multiple cysts, the internal wall of the cavities is sometimes perfectly smooth, and is only covered with a layer of pavement epithelium. Sometimes there are found upon it papillary excrescences, with a very abundant vascularization, and projecting more or less into the cavity. We have also already many times observed in such tumors a development of endogenous cysts. We ought, then, notwithstanding the contrary assertion of Kiwisch, to recognize its possibility; still the case is very rare.

The contents of these cysts are very varied. While some contain only a limpid fluid, ordinarily of a light yellow color, others contain blood, pus, or more rarely fat or hair. Ossification and cartilaginification have been less frequently observed in the cysto-sarcomata than in the ordinary composite cysts. The cellular tissue which separates the cysts from one another presents, in different points of the tumor, a variable consistence; it is sometimes thin, and sometimes more dense, and the development of vessels in it is more or less considerable.

The latter frequently present upon some point of their track a disposition like those of the cavernous bodies, and their walls easily break, and originate hæmorrhages as well in the cavity of the cyst as into the layers of the connective tissue.

The cysto-sarcomata of the ovaries sometimes attain, either by a continual development of new cellular tissue, or by the increase in the contents of the cysts, a considerable volume, which sometimes surpasses the size of a man's head; still they do not generally attain to such colossal dimensions as those which the composite cysts sometimes reach. Here too we ordinarily find some of the superficial cysts developed considerably, and so to speak, at the expense of the others, which gives to the entire tumor an irregular and bosselated form. Peritonitis and adhesions with the neighboring organs are the more frequent as the tumor is more voluminous, and as its development has been more rapid.

Finally, let us say in conclusion, that the cysto-sarcomata frequently accompany other tumors, as the cysto-carcinomata and the multiple cysts, and that generally they affect but one ovary. They have, however, been met with in both ovaries, but in general the affection was much more developed in one of these organs than in the other.

E. The **cysto-carcinoma** is a multiple cyst filled with medullary cancer. This cancerous mass is developed sometimes in the tissue of the walls of the cyst, sometimes it only adheres to the internal surface of this wall in the form of medullary tumors more or less considerable, projecting into the cavity of the cyst, or the latter is hung with papillary excrescences filled with medullary tissue. These excrescences are sometimes pedicellated, sometimes planted on a firm base; they are always soft, tumefied and very rich in vessels. They sometimes completely fill the cavity of the cyst and they have even been seen to perforate at last the walls, and to develop themselves into a neighboring cavity or outside of the tumor.

When, besides these cancerous vegetations, the cyst also contains a liquid, the latter is ordinarily limpid: it sometimes presents the remains of hæmorrhages; at other times it has a consistence resembling that of gelatine (the colloid and the cysto-carcinoma are frequently met with together). It is but

exceptionally that fat, hair, teeth, or bones are found in these cavities. Still, we have observed them in numerous cases.

The cysto-carcinoma differs from all other ovarian tumors by its rapid development: it often attains at the end of a few months, the dimensions of the uterus near the end of gestation, and upon its surface numerous protuberances may be recognized, larger than a man's fist, each formed of an isolated cyst filled with a tolerably consistent cancerous mass. We have heretofore considered in a pathological point of view, all the tumors of the ovary which are encysted, and consequently inclose more or less of liquid; it remains for us now to speak of the neoplasms of the ovary which form perfectly **solid tumors.** In the first rank we behold

A. **Fibrous Bodies.** These are more or less voluminous tumors, formed of cellular tissue, the fibres of which, as in the fibrous bodies of the womb, sometimes present a concentric organization, while at other times they interlace in every direction, the vesicles are generally little developed. It is one of the rarest ovarian affections, and we are only aware of four cases in which the autopsy has demonstrated the fibrous nature of a tumor diagnosticated during life. The smallest of those which we have observed had the size of a goose's egg; it was spherical, elongated, as hard as cartilage, and almost without vessels. The largest exceeded the size of a man's head; upon cutting it, the concentric organization of its fibres around several cavities was recognized: its tissue was loose, containing numerous vessels on some points of the tumor: the veins showed an organization like those of cancerous bodies. The whole tumor weighed 19 lbs.; it was irregular and seemed to be composed of several tumors pressed together. There remained no trace of the normal tissue of the ovary, and in the other of these organs were found several dropsical vesicles, some of which had attained the size of a pigeon's egg. The patient had succumbed to Bright's disease.

B. Kiwisch says that he has twice observed **enchondromata** of the ovary. Once these cartilaginous concretions surrounded the ovary in the form of numerous plates or of rounded protuberances, more or less large, which gave to the entire organ an aspect altogether tuberous. At another time,

the right ovary was entirely transformed into a tumor of the size of the fist, surrounded with numerous false membranes, whose exterior layers contained large, hard, cartilaginous nodules, while the interior of the tumor resembled a cartilaginous hyaline mass of very great hardness.

We do not know in the medical literature of any other kindred facts. These two anatomical specimens, described by Kiwisch, are to be found in the collection of pathological anatomy of Prague. We examined the second of these pieces, when it was taken from the cadaver, and many times since, but we could not regard it as an enchondroma; we rather think that it is a fibrous tumor composed of connective tissue, in the middle of which a very rare cartilaginification had, it is true, taken place in the organ which occupies our attention. We regret that we did not, during our residence at Prague, examine this tumor in a more careful manner.

In any case, if it is true that enchondromata of the ovary do exist, it is surely the most rare form of the tumors of this organ.

C. **Solid Cancerous Tumors** without cysts are rarely met with in the ovaries, except as a secondary affection, in consequence of a cancerous degenerescence of other organs, and especially of the womb, peritoneum, and the rectum; the medullary cancer is met with there rather than the different fibrous cancers, and these tumors rarely exceed the size of a fist. We have sometimes observed the fibrous cancer of the ovary as a primary affection. Among other cases we once saw it together with a medullary cancer of the parietal and visceral pleura. At another time in coexistence with a fibrous cancer of the breast; in the first case both ovaries were affected; in the latter the right only was diseased, but to such a degree that it was not possible to recognize the least trace of the normal tissue of the organ. In a miscroscopic point of view, these tumors do not differ from similar affections of other organs; but we will not enter into fuller details.

As to **cystocarcinomata** or cancerous deposits in the ovaries accompanied with encysted dropsy, we have already sufficiently spoken above. The affection of the ovary which has been described under the name of **melanosis** has not yet been pre-

sented to our observation. We give here the description of such a case, which, borrowed from Liston, we find in the often cited work of Th. S. Lee (p. 270). All the peritoneum as well as the omentum were sprinkled with spots of melanotic substance. The same affection is met with in the pleura, the lungs and pericardium. The sternum, the ribs, the parietal and occipital bones, as well as the internal surface of the cranial vault, were blackened, brittle, softened, and the membranous envelopes of the brain were traversed by black lines. The ovary was considerably enlarged from a deposit of the melanotic substance, and was transformed into a uniform black and soft mass. Its peritoneal envelope appeared stained from the black substance which it covered and which was perceived through its transparent substances. From some observations which we have been able to collect upon this subject, we may draw the conclusion that melanosis of the ovary is never isolated in this organ, and that invariably the affection is simultaneously met with in other more important organs, especially the serous envelopes of the lungs, the brain, etc. It is, therefore, of secondary importance in a practical point of view.

Etiology of Ovarian Tumors.—The tumors of the ovary, which we are about to describe, are among the most frequent affections of the female genital organs. In 1823 gynecological cases, of which we have taken exact note, 97 were ovarian tumors. As we shall hereafter demonstrate, it is not possible to recognize with entire certainty, the nature of the tumor during the life of the patient, hence, we will rest our etiological observations upon 41 cases in which the death of the patients permitted us to determine exactly the nature of the tumor, the presence of which had been recognized during life.

In these 41 cases there were:

13 simple vesicular dropsies.
12 composite cysts.
9 colloid tumors.
5 cysto-sarcomata,
and 2 cysto-carcinomata.

More than half, then, of the observed cases were simple or composite cysts.

In these 41 cases the right ovary was 14 times the seat of the disease, the left 13 times, and both together 14 times; in these latter cases, the right ovary was 9 times, and the left ovary 5 times the principal seat of the affection.

Comparing these results on the subject of the seat of the tumor with those of Lee and Chéreau, we arrive at the following figures.

The seat of the tumor was, according to Lee, in 93 cases, 50 times on the right side, 35 on left, and 8 on both sides; Chéreau, in 215 cases, 109 times on the right side, 78 on left, and 28 on both sides; Scanzoni, in 41 cases, 14 times on the right side, 13 on left, and 14 on both sides.

Hence, it results that without counting the cases where the tumor affecting both ovaries at the same time, was more developed on the right than on the left, the affection in question is more frequent on the right, for in fact in 349 cases, we find the right ovary affected 173 times, and the left only 126 times.

As to the age at which we recognize the first symptoms of the disease we find in our 97 cases:

5	were	from	18	to 25	years.
12	"		25	" 30	"
21	"		30	" 35	"
32	"		35	" 40	"
14	"		40	" 45	"
6	"		45	" 50	"
2	"		50	" 55	"
5	"		55	" 60	"

Lee observed this affection:

			in 135	cases,	82	times	between	20 and 40 years.
Chéreau,	230	"	133		"		17 "	37 "
Scanzoni,	97	"	70		"		18 "	40 "

There is then no doubt that in the greater number of cases, the development of the different ovarian tumors coincides with the period of the activity of the sexual organs of the woman.

As to the influence of the sexual functions, we see, in the observations of Lee, in 136 patients, 88 married, 37 unmarried, and 11 widows; and in our 97 patients, 45 married, 40 unmarried, and 7 widows; we shall, however, add here in rela-

tion to the 45 married, 13 had never had children, while in the 40 unmarried, 17 had had one or more children; but of the 7 widows, 5 were sterile. Thus, out of 97, 51 of our patients had never conceived. If beyond this it is considered that out of the 40 unmarried, 16 were completely virgins, we may be allowed to draw the conclusion that a complete abstinence from venereal pleasures, observed up to advanced age, as well as the absence of conception, are, up to a certain point, one of the predisposing causes of the diseases of the ovary which occupy us. It should, however, not be forgotten, that a slight alteration of the ovaries may exist during a long time, without incommoding the persons who are subject to it, and that from the beginning it may be an obstacle to conception, so that in some cases we shall find it difficult to decide whether the sterility is the cause or the result of the disease of the ovaries.

As to the condition of menstruation, we have only that of 57 of our patients; 20 of them menstruated regularly up to the appearance of the first undoubted symptoms of the ovarian disease; 19, affected with chlorosis, had defective catamenia, or none at all; with 12 each return of the catamenial flow was accompanied by a more or less violent dysmenorrhœa; 5 had, from the epoch of puberty, very abundant courses, and with 1 the amenorrhœa had been complete up to 41 years of age, when we took her on treatment. It results from the preceding that 37 times in 57 patients anomalies of menstruation had existed before the beginning of the affection. As to occasional causes, we find, according to Lee, this malady to depend 16 times upon the functions of reproduction; 7 times the patients indicated as cause of the disease a sudden suppression of the courses, twice amenorrhœa, and 3 times an irregular menstruation. In the other 7 cases they assign as causes excessive emotion, colds, or exterior violence. In our own observations we have paid little attention to the statements of patients, for it is here especially that the false reasoning is oftenest applied; *Post hoc, ergo propter hoc.*

It suffices, then, to indicate that in 27 patients the affection appeared in 2 shortly after their marriage; 6 times it was preceded by a sudden suppression of the menses, and 13 times we found after parturition a persistent pain in the inguinal region

during a longer or shorter time, which caused the presence of the tumor to be recognized; 3 times, moreover, repeated abortions were the cause of the disease; and 3 times a violent metritis, in consequence of cold. In the other 70 cases the statements of the patients were so little to be relied on that we refrain from mentioning them.

To recapitulate the results of the observations of ourselves and others, as to the etiology of ovarian tumors, we find, unless in rare exceptions, that the beginning of this disease takes place in the epoch when the woman is susceptible of fecundation, and even in cases where the symptoms do not become evident until after the critical age, we must admit that the origin of the disease dates back to an earlier time. Abstinence from venereal pleasures seems to predispose to these affections, which, as is known, are especially frequent among women who have, for a longer or shorter time, suffered from the various disorders of menstruation. The frequent ovarian hyperæmias, acute and of long duration, play a great part in the etiology of these affections; a fact which we have already sought to demonstrate in speaking of the pathogenesis of the simple cysts of the ovary, and to the support of which we will add that, as may be concluded from the figures cited, these tumors often begin to develop themselves after the appearance of an intense hyperæmia of the organs of the pelvis in general, and of the ovaries in particular, proceeding from venereal excess, a pregnancy, a sudden suspension of the courses, etc. Finally, it is shown by our statistics that the right ovary is more frequently the seat of this disease.

The researches upon the etiology of ovarian tumors, up to the present time, have no other results, and all the assertions of various authors, especially the ancients, who differ from what we have said, ought to be considered as hazarded hypotheses, completely without foundation. We will, therefore, pass them by in silence, and conclude by observing that the relations of cause and effect, which were formerly believed to exist between these affections and various constitutional diseases, as scrofula, tuberculosis, and syphilis, have been completely refuted by recent pathological researches, which have proved that tuberculosis of the ovaries is one of the most rare affections of these

organs. Its existence is even denied by some distinguished pathologists. The only exception to this rule relates to medullary cancer of the ovaries, which, as we have above said, is not rare as a secondary affection, in consequence of the cancerous degeneration of other organs.

Symptoms.—With some few exceptions, a painful sensation in the seat of the ovary always indicates the beginning of the different ovarian tumors. Ordinarily it is a pricking sensation, or simply a vague sensation of pressure or smarting, which frequently radiates toward the corresponding lower extremity, and sometimes simulates a neuralgia. The patients often complain of a numbness, accompanied by prickings and itchings in the leg of the affected side, but it is more rare to observe at this stage a serous infiltration, or an œdema of this extremity. A pain in the perineum, which is noted as an almost characteristic symptom by some authors, has been complained of by some of our patients, but only after attention was drawn to this point by our questions. Almost all, however, complained of a frequent and very painful desire to micturate, and with the most defecation was also difficult or painful. The state of menstruation is very variable in the first periods of the disease. In some cases a complete amenorrhœa is observed; in others, the catamenial flow is more frequent and more abundant; but with some patients the affection of the ovary arrives at an advanced stage without the least catamenial trouble.

There is not a doubt that the condition of menstruation depends upon that of the ovaries, and we have many times been able to convince ourselves by autopsies that the sanguineous discharge continues as long as one part, and this may be only **one** ovary, has preserved its physiological structure. When the menses completely cease from the beginning of the disease, we think that we may, relying upon numerous observations, be able to draw the conclusion that the ovarian affection is accompanied by a profound alteration of the tissue of these organs, just as also takes place in multiple cysts and colloid or cancerous tumors. We have often been able at the autopsy to recognize that simple vesicular cysts, even of both ovaries, do not necessarily arrest the menstrual flow, for there is almost always a portion of the organ which preserves for a long time

its normal structure. Amenorrhœa, on the contrary, is not rare when the ovaries inclose multiple cysts, colloid, or cancerous tumors, even though the affection is not very advanced. It is unnecessary to state that the dysmenorrhœal phenomena which often precede the beginning of this disease, do not at all disappear during its course, if, indeed, the menstruation itself persists. Among the morbid sympathetic phenomena which accompany the beginning of ovarian tumors, we must especially mention the intumescence of the breasts, which is connected with the periods of menstruation, and various troubles in the functions of the stomach, but which are here rarely so considerable as in the diseases of the uterus. Finally, the affections which occupy our attention sometimes at their beginning cause disorders in the hæmatogenesis, in consequence of which we see all the known symptoms appear of chlorosis and hysteria.

According as in the course of the disease the tumor increases and passes from the cavity of the pelvis into that of the abdomen, we sometimes see a diminution of the symptoms proceeding from the compression of the organs of the pelvis. The sensation of pressure and weight in the pelvis moderates, the desire for urinating becomes less frequent, the defecation less painful, and the movement reappears in the inferior extremity of the diseased side, which at the same time finds again its normal sensibility. Still the cases are numerous in which we might wait in vain for a like amelioration in the state of the patient, and it even sometimes happens, although the tumor is developed in the side of the abdominal cavity, that one part remains fixed in the pelvis, and there constantly becomes more voluminous. All the symptoms then increase without cessation, and finally become almost insupportable to the patient.

But to these morbid symptoms there are still others added which augment in intensity in proportion as the tumor increases in size. The rapid growth in the size of the abdomen renders every movement troublesome, prevents the patient from attending to her usual occupations, and she often seeks in vain for a position in which she shall be less disturbed by the enormous weight of the abdomen. At this epoch of the disease the compression of the stomach and the intestinal canal leads to disorders

in the digestive functions, which, on their side, exert an injurious influence on the hæmatogenesis, and the more so, as the progressive contraction of the thoracic cavity also disturbs the functions of the lungs. The hydræmia which results therefrom produces an infiltration of liquid into the sub-cutaneous tissue of the inferior extremities of the external genital organs, and of the abdominal walls, into the peritoneal sac, and sometimes even into the thorax. This infiltration with acute œdema of the lungs, which early supervenes in such cases, adds to the already excessive torments of the patients.

The peritoneal envelope of the tumor frequently becomes the seat of an acute or chronic inflammation, which often communicates to other portions of the peritoneum, and is the cause of painful, intense and reiterated paroxysms.

At this stage of the disease new disorders are observed affecting the bladder, because this organ, being indirectly connected with the tumor by the agency of the peritoneum and the uterus, is constantly drawn higher, a displacement which by itself suffices to render more frequent the desire of micturition. The compression which the tumor exerts upon the bladder from before backward, also contributes to prevent the dilatation of this organ in the indicated direction. Sometimes the compression of the inferior portion of the bladder has been seen preventing the flow of the urine through the ureters. Hence, it occasions frequently a considerable dilatation of these organs and the calyx. We have treated a patient with whom, in the course of three years, we performed paracentesis twenty-seven times, and during the last year this operation was especially necessary because, the tumor always filling very rapidly, there resulted therefrom a complete retention of urine, which did not disappear by catheterism, as the obstacle of which we have spoken prevented the urine from passing through the ureters into the bladder. Some days after this operation the functions of the bladder followed their physiological course, but soon the urine began to flow in a less quantity, and at the end of five or six weeks the retention was again complete. At the autopsy we found a cysto-sarcoma twice the size of a man's head. The inferior portion compressing the neck of the bladder, occasioned by the retention of the urine

such a dilatation of both ureters that the one of the right side had a diameter of two inches, and that of the left, one inch and three-fifths. It is probable that we should class in the same category the cases cited by Lee, Burns, etc., in which these authors indicate that the secretion of urine had been entirely suppressed by the pressure which the tumor exerted upon the kidneys.

In the same manner the ovarian tumor can also, by its excessive development, exert such a pressure upon the rectum that it will be almost impossible for the fecal matters to pass by the place of the compression; the necessary consequences are a painful meteorism of the intestinal canal and the stomach, constant vomitings, and even an ileus, if recourse is not had to puncture, to diminish the size of the tumor, or where this is not possible in consequence of its solid nature.

Such is the ordinary course of the symptoms which are observed in the progress of these affections. Still we should not forget that ovarian tumors are met with which attain very considerable size without causing the patients other inconvenience than that which results from the development and the weight of the abdomen. It sometimes even happens, especially with women who are very fat, or are affected with a habitual meteorismus, that they do not perceive the presence of a quite voluminous tumor until the physician has called their attention to it. This is especially the case, as we have been able to convince ourselves, with simple vesicular cysts, while the composite cysts and other tumors are ordinarily from the outset accompanied by the symptoms which we have described above.

We shall give some details upon the termination of the ovarian affections which occupy us, after having considered them in a diagnostic point of view.

Diagnosis.—The exact appreciation of the alterations caused by the presence of an ovarian tumor, and accessible to our means of exploration, necessarily demands a precise knowledge of the relations of these tumors with the neighboring organs in the different periods of their development.

It may be conceived, considering the normal position of the ovaries upon the external part of the posterior surface of the

broad ligaments, that a tumor developing in these organs can, so long as it does not exceed the size of an egg, preserve its position behind the ligaments which pass from the womb toward the sides of the pelvis. In fact, with some exceptions, which will be considered hereafter, the ovarian tumors presenting the above mentioned dimensions are situated in the posterior part of the pelvis. But when the tumor enlarges, it meets with an obstacle to its development in the lateral wall of the pelvis, and if it be pushed back from the side toward the middle of the pelvis, it advances the more toward the space limited by the folds of Douglas. It develops then from below upward, and in the direction of the opposite wall of the pelvis, and it is thus that ovarian tumors, of the size of a fist, or of a child's or even of a man's head, are almost constantly located behind the womb, in the recto-uterine cul-de-sac.

Scarcely an exception will be found to the rules which we have laid down on the position of the ovarian tumors, unless when the ovary had, before its degeneration, left its normal position in consequence of peritoneal adhesions, or when the tumor developing in the ovary had from the outset passed the superior border of the corresponding broad ligament, and afterward had fallen by its own weight into the space of the pelvis situated in front of this ligament. It is in such circumstances that we find tumors as large as the fist, or a child's head, in front of or above the womb.

The uterus ordinarily undergoes during the course of this ovarian affection more or less considerable deviations. Thus small tumors situated in the lateral and posterior portion of the pelvis push the fundus of the uterus toward the opposite side, while the vaginal portion draws near the wall of the pelvis corresponding to the seat of the tumor, thus occasioning a lateral displacement of the womb ordinarily complicated with anteversion.

When the tumor is developed in the recto-uterine cul-de-sac it often draws down the posterior portion of the vaginal cul-de-sac, and pushes forward the neck of the womb, sometimes perceptibly making it rise upward. The body and fundus of the uterus naturally undergo corresponding displacements.

If the tumor situated in the recto-uterine cul-de-sac goes on

developing itself further, it then rises out of the pelvis into the abdominal cavity, just as a uterus containing the product of conception. There results an elevation of the womb, this organ being drawn out of its normal position by the ligaments of the ovary, the folds of the peritoneum and the peritoneal adhesions, which will certainly by that time have formed. If the traction is made directly from below upward, the uterus preserves a vertical position; but if it is stronger upon one side than the other, the elevation of the womb is then accompanied by a lateral version. This misplacement cannot take place till a latter stage, when the tumor, arrived in the abdominal cavity, is developed more toward one side, when it leans by its own weight, or when it is retained in that position by adhesions resulting from inflammation.

But when the tumor, after having passed the broad ligament, has descended into the anterior part of the pelvis, the fundus of the uterus is pushed backward. A complete anteversion may result from this if the tumor continues to develop and remains in the median line. It supports itself then by its inferior surface upon the anterior wall of the uterus, which looks upward, and thus it gradually depresses the fundus of the uterus, so that at length it is much lower than the vaginal portion. Should the pressure exerted upon the womb be more lateral, the body of the uterus is then pushed to the side opposite to the seat of the tumor, and in this case it sometimes happens that the longitudinal diameter of the uterus takes a horizontal direction, and that the womb is laid transversely or obliquely below the ovarian tumor.

When the tumor has attained a considerable volume, and when its ulterior development in front and on the sides is arrested by the abdominal walls which are incapable of further dilatation, it pushes still lower the organs which form the floor of the abdominal cavity, and thus occasions a descent or prolapsus of the womb as well as of the vagina.

The uterus also undergoes various alterations of structure in consequence of the mechanical influence of the tumors of the ovaries. Thus the elevation of the uterus which we have already noted is almost always accompanied by a lengthening of this organ, ordinarily resulting from the fact that the uterus

drawn upward is fixed below by the resisting walls of the vagina. Often also this lengthening of the organ is accompanied by a hypertrophy of its walls, and here this chronic engorgement proceeds sometimes from the congestions which take place in the organs of the pelvis during the development of the tumor, and sometimes from difficulties in the circulation due to the pressure made by the latter upon the vessels of the pelvis.

When the elevation of the uterus has lasted for a long time, and when the traction exerted upon this organ, in consequence of the continual development of the tumor, does not cease, it at length elevates the vagina also. The latter lengthens, the folds of its mucous membrane are effaced, the cul-de-sac contracts, in consequence of the violent traction, and sometimes takes the form of a funnel, the point of which is toward the vaginal portion. The sanguineous stasis which affects all the organs of the pelvis, is also communicated to the vagina, and is the cause of vaginal leucorrhœa, which in such cases is rarely absent.

We have already, in speaking of symptoms, mentioned the influence which tumors of the ovaries have upon the bladder, the ureters, and the kidneys.

The intestines themselves are also constantly displaced. The tumor in ascending from the cavity of the pelvis into that of the abdomen, ordinarily pushes them from below upward, and also backward by reason of their adherence to the posterior wall of the abdomen by means of the mesentery. This is why, when at the autopsy we open the abdomen of a woman affected with a voluminous ovarian tumor, the intestines are not seen, or are only found in the inguinal regions. There are no exceptions to this rule but those which result from adhesions contracted by some loops of the intestines with the anterior and lateral abdominal walls, with the uterus, or the bladder, etc., during the development of the tumor. When the latter occupies one of the halves of the abdomen, and when it is so adherent to the adjacent abdominal wall that it cannot fall to the opposite side on the patient changing her position, the free half of the abdomen contains all the intestines, and in such cases the stomach itself may be be displaced. We have noted

a case in which a colloid tumor, situated in the right half of the abdomen, and ascending to the inferior surface of the liver, with which it had contracted some adhesions, had so turned to the left the pyloric orifice of the stomach that this organ had an almost perpendicular position.

We have already stated that the rectum is ordinarily compressed by ovarian tumors, but we will here add that the degree of compression is not constantly in a direct relation to the size of the tumor. We have often seen tumors, small in volume but solid and fixed in the pelvis, cause much more violent phenomena of compression than larger tumors, which were situated in great part in the abdominal cavity, and inclosing liquid contents. Finally, it sometimes happens that the tumors which are developed in the pelvis displace the rectum from its normal position, pushing it sometimes forward, sometimes toward the right side of the pelvis. Thus the compression is often diminished, but the functional disorders persist none the less.

When the tumors of the ovaries are rapidly developed and attain a considerable size, the tension of their peritoneal envelope often gives rise to partial exudations and adhesions between the tumor and the abdominal walls as well as the different adjoining organs.

Another cause of peritonitis is the rupture of the walls of the cysts, with a resulting effusion of the contents into the abdominal cavity, which is sometimes observed in the course of this disease. Finally, chronic peritonitis is sometimes met with, which, without being accompanied by very violent symptoms, causes a continual serous exudation, which, with time, becomes a true ascites.

The natural openings of the anterior abdominal wall often dilate considerably when the latter is distended by very considerable tumors. This is particularly frequent with the umbilical ring, which is often dilated to such a degree that the tumor forms a true hernia. When the patient has been already affected with an inguinal hernia, the inguinal canal ordinarily dilates very much, as we have in two cases observed. This dilatation has not, however, much importance, because the organs contained in the hernial sac, if at least they have not already

contracted adhesions with the sac itself, or with the inguinal ring, are ordinarily driven back into the abdominal cavity in consequence of the development of the tumor. It also sometimes occurs when the tumor is very voluminous that considerable erosions are formed in the median line of the abdominal walls, in such a manner that the tumor is situated immediately below the skin. Thus, in one case we have seen the umbilical ring with a diameter of three inches in a person who, at the same time, had an orifice of nearly four inches in the anterior abdominal wall, below the umbilicus.

The voluminous tumors often push up the diaphragm very considerably, and this elevation is ordinarily greater on the right than on the left by reason of the presence of the liver. We lately assisted at an autopsy where we saw the diaphragm pushed up to the height of the second rib by an enormous cysto-sarcoma of the left ovary.

The thrombosis of the veins of the pelvis, and of the inferior extremities, which are not at all rare in consequence of ovarian tumors, may have some importance in a diagnostic point of view. It ordinarily forms only on the side where the tumor exerts a strong pressure; still, it has been observed on both sides, accompanied by an œdema and a varicose dilatation of the veins.

After having indicated the influence that tumors of the ovaries exert upon organs more or less distant, let us now attempt to draw some **diagnostic conclusions**. Through the slightly resisting abdominal walls, whose fatty tissue is but little developed, we may sometimes recognize by palpation such tumors as have not exceeded the size of a hen's egg. They are ordinarily situated upon the sides, in one or the other of the inguinal regions, or nearer to the median line of the abdomen. But in the latter case, when the patient has for some time observed the presence of the tumor, we may always apprehend that it was at first situated more upon one side, and that it has gradually approached the median line. At this stage, simple tumors, formed with a single cavity, are elastic, and yield to pressure if indeed they do not, as yet, evince a veritable fluctuation. Their form is spherical or slightly elongated, and neither projection nor hollow is noticeable upon their surface.

All other tumors, on the contrary, even those containing several cavities filled with liquid, evince a considerable hardness, and sometimes have an irregular and mammillated form. Pressure in the region occupied by these little tumors generally causes no pain, so that when pain is felt, it may be concluded that an inflammation exists in the peritoneum covering the ovary. These small tumors are often very movable, and when they can be seized through the abdominal walls, they can be pushed from one to two inches to the right or left.

Larger tumors, of about the size of a man's head, occupy ordinarily the median line, unless they are retained on the sides of the abdomen by peritoneal adhesions. In the former case, the augmentation of the volume of the abdomen is tolerably uniform; in the second, it is more on one side. These tumors, in spite of their size, are still sometimes sufficiently movable to be pushed from one side to the other by applying the hand flat on the abdomen. Often even the patients themselves perceive this mobility, for they have then a feeling as if a body of greater or smaller size rolls from one side to the other of their abdomen when they change their position. But, when the tumor is not greater than a man's head, and when its position cannot be changed in the manner indicated, the presence of adhesions between the peritoneum which envelops the tumor and the anterior wall of the abdomen is very probable. Simple vesicular dropsies rarely attain so great a size, and when this occurs, the tumor is always round or oval with a smooth surface, not bosselated or mammillated, and it always presents a very sensible fluctuation, which is already perceived by tapping lightly with the finger upon any part of the tumor. The composite cysts, the colloids and the cysto-sarcomata have ordinarily a more irregular form, and upon their surface, corresponding to the abdominal wall, more or less numerous projections are to be noticed, separated by furrows of different depths, which sometimes exhibit a slight fluctuation and sometimes appear in the form of hard and resisting bodies. The fluctuation in these composite cysts is not noticeable except upon some points of the tumor, or it occupies it entirely; but it is neither so perceptible nor so easily produced as in the vesicular cysts. The tumors in question are rarely situated in the median line,

they are oftener developed rather toward one side, where they are retained by their own weight or by anterior adhesions.

In the majority of cases, the outlines of the tumor may be recognized by percussion, for in all its extent it gives an empty and dead sound which becomes tympanitic in the lumbar region by reason of the intestines which are there collected. The only exception to this rule is when the tumor is accompanied by ascites; for then, the patient being in a horizontal position, the free liquid descends toward the lumbar region and modifies the results of percussion. Much more rarely we also see loops of intestine adhere to the anterior abdominal walls in consequence of inflammations, and thus remain before the tumor. We then find, at least in some parts of the tumor, a tympanitic sound, and this latter is especially very marked when the pressure exerted by the tumor gives rise to constrictions of the intestinal canal, above which dilatations are always formed with a collection of gas. Finally, we should not forget that sometimes similar collections of gas are met with in the interior of the cyst, which give to the percussion a full and tympanitic sound. This gas is sometimes, as we have lately had an example, the result of the putrefaction and decomposition of the contents of the cyst, or else it proceeds from a communication which is formed between the latter and the intestinal canal. An ovarian tumor, which, up to a certain period, gives on percussion a flat sound, may thus all at once give a tympanitic sound.

But if the tumor continues to increase in volume, and becomes greater than a uterus at the close of pregnancy, then the frayings and crackings of the abdominal walls will be observed, of which we have before spoken, the skin becomes shining, white, translucent. Numerous sub-cutaneous veins dilate and become apparent, and numerous ruptures are made in the mucous plexus of Malpighi, which appear in the form of whitish grey, or bluish lines like cicatrices. The dilatation of the abdomen is ordinarily irregular; the projections and furrows are more distinctly marked upon the serous portions of the tumor, and the fluctuation becomes more noticeable, for tumors so voluminous always contain considerable cysts. The fluctuation sometimes extends even over the whole abdomen, even

when the tumor is composed of many cysts separated one from another by partitions which are often very thick. Still, we should add that, in such cases, there is almost always at the same time an ascites which favors the transmission of the fluctuation from one point of the abdomen to the other. Percussion gives almost always a dead sound throughout the whole extent of the abdomen, and it is only with difficulty that the tympanitic sound of the intestines is heard toward the hypochondrial regions. When a tumor of the ovary has attained to such colossal dimensions, it is almost always a composite cyst, and even when at the autopsy some parts of the tumor partake of the nature of sarcoma, colloid, or carcinoma, the general structure is always that of multiple cysts. It is rare to see true cysto-sarcomata or cysto-carcinomata attain similar dimensions. Their presence cannot be suspected during life, except when the surface of the tumor, directed to the side of the anterior wall of the abdomen, is covered with very hard and projecting protuberances from the size of a hen's egg to the head of a fœtus. A cancerous affection may be supposed when the aspect of the patient is cachectic, when the subcutaneous fatty layer is rapidly disappearing, when the strength sensibly diminishes, or when a similar affection has been recognized in another part of the body.

Before indicating the results of internal exploration, we ought to mention some symptoms drawn from **auscultation.** When the great vessels situated in the pelvis are compressed by the tumor which reposes upon them, or when considerable vessels, especially arteries, are developed in the interior of the tumor, it sometimes happens that on auscultation of the abdomen, and more particularly the inguinal regions, a bruit is heard identical with that heard during pregnancy, and designated by the name of the **uterine bruit.** Although some authors, and among them, Kiwisch, have thrown some doubt upon the existence of this bruit proceeding from ovarian tumors, we can affirm that we have heard it in some few cases, where the autopsy has demonstrated the presence of an ovarian tumor, and we are the more sure that we have not been deceived upon this point, as many times persons present have been able to establish the truth of our observation. It is proper, however,

to say that we have never encountered these bruits in simple cysts, and that they accompany only solid tumors, composite and provided with a much developed vascularization.

A second symptom furnished by auscultation of the abdomen is the friction sound which sometimes is heard over some points of the anterior wall of the abdomen when the patients change their position, or when they simply respire. It results, undoubtedly, from the rubbing of the rough surface of the tumor against the internal surface of the abdominal wall, which is itself covered with asperities. These are the products of an exudation which has taken place upon the two surfaces in contact. In fact, we have invariably recognized it at the autopsy in all similar cases which we have examined, and which terminated in death. But besides these asperities we have constantly met with adhesions more or less numerous between the abdominal wall and the tumor, and we think, in consequence, we have a right to affirm that the friction-sound in question is an almost certain sign of the existence of adhesions on the surface of the tumor. The asperities upon the two surfaces in contact are often so considerable that the friction-sound may be easily perceived by simply placing the hand upon the place where it is produced.

When the cavity filled with liquid is very large and when the ear is placed upon the abdomen at the same time that we percuss, we may often hear a sound of a *glou-glou* more or less loud.

By **internal exploration** we must at first determine the presence of the tumor, its location, its consistence, and other properties. Next, we should ascertain what influence it exerts upon the position and structure of the other genital organs, and especially of the uterus, for, as we have above said, the state of these is often, in a diagnostic point of view, very important to determine.

After the details which we have above given upon the relations of the ovaries, it will be understood that it is easier to determine and to feel through the walls of the vagina a tumor still small, that is to say, which has not yet exceeded the size of a child's head, than more voluminous tumors which have already risen into the abdominal cavity. It is often through

the posterior part of the vaginal cul-de-sac, more rarely upon the sides of this organ that the tumor is perceived. It presents itself in the form of a mass which is sometimes elastic and doughy, sometimes hard and resistent, according as its contents are liquid or solid. These little tumors are ordinarily so firmly fixed that if we exert with the finger a considerable pressure, we cannot make them change their place. Still, by the vagina a slight mobility may be recognized in the cases where it is possible through the abdominal walls to push the tumor from one side to the other. The cul-de-sac of the vagina is then always very distended, especially at the part which covers the tumor, where ordinarily the rugæ have completely disappeared. The vaginal portion has frequently preserved its normal proportions. Still, we have often seen it tumefied in consequence of the circulatory troubles occasioned by the tumor. When this is situated very low in the pelvis in such a manner as to exert a pressure upon the inferior portion of the body of the uterus, the extremity of the vaginal portion is pushed to the side opposite the tumor; while if the pressure acts chiefly upon the superior part of the womb, the vaginal portion is directed toward the side where the diseased ovary is found. Furthermore, we are able, though it is not ordinarily necessary, to recognize these deviations by means of the uterine sound, which, in the first case will be directed to the side of the tumor, while, in the second, it will take an opposite direction. When the structure of the uterus is not altered, especially when there is no engorgement, its dimensions do not differ much from what they are in the normal state, but in the contrary case, the longitudinal diameter of its cavity will always be more or less elongated.

But when the tumor ascends into the abdominal cavity, its inferior portion withdraws at the vaginal touch, and instead of the tumor with boundaries clearly defined, we feel only a resistance over a more or less extended portion of the vaginal cul-de-sac. When we have a considerable cyst, the finger, placed upon this point of the vagina, often perceives a very distinct fluctuation when the abdomen is percussed. The deviation of the uterus produces an elongation of the vagina, which in its superior portion is contracted, and often terminates in a funnel

on the side of the vaginal portion, which itself seems shortened and scarcely makes even a slight projection upon the fundus of the cul-de-sac. When the inferior portion of the tumor is situated behind the uterus, the latter organ is sometimes wholly pushed in front in such a manner that the vaginal portion is strongly pressed against the anterior abdominal wall, and sometimes a true anteversion results therefrom, the vaginal portion being directed from before backward. Sometimes even the uterus takes an entirely horizontal position below the tumor, and we can then, through the anterior wall of the vagina, follow with the finger, throughout their whole extent, the boundaries of its anterior surface. On the other hand, displacements the reverse of those just described are observed, when the tumor is situated in front of the uterus, in the vesico-uterine cul-de-sac. Then the entire organ is pushed backward, the vaginal portion is found in the posterior and superior portion of the pelvis; but when there is retroversion, the neck of the womb is directed forward, and by the touch we can feel to a more or less extent, the posterior position of this organ which looks downward and toward the posterior portion of the pelvis. The lateral displacements depend upon pressure stronger upon one side than on the other; and for the results which, in such a case, can be obtained from internal exploration, we will refer to the anatomical details which we have above given.

When these tumors are very voluminous, and almost entirely fill the abdominal cavity, they are always, to a more or less considerable extent, accessible to the vaginal touch; and when their inferior portion has not a compact and solid structure, when they are not composed of over-numerous cavities, and when their contents are liquid, the finger introduced into the vagina will perfectly recognize fluctuation when the anterior wall of the abdomen is percussed. The vaginal cul-de-sac, especially in its posterior part, is depressed as well as the vaginal portion, and when the pressure exerted by the tumor attains a high degree, there may result an irreducible prolapsus of the uterus and vagina, which is the more easily developed, as the vagina, as well as the other organs destined to maintain the uterus in its position, having, in a less advanced period of the disease, undergone a considerable tension and

lengthening, cannot oppose the necessary resistance to the pressure exerted by the tumor. As the prolapsus of the womb is not formed until after this organ has for a long time undergone traction from above downward, it is clear that the examination with the sound will always recognize an elongation of its cavity.

The touch per rectum will be of no practical utility except with small tumors, when it may contribute to the practised physician a more exact knowledge of their position, attachments, size and consistence.

To render this chapter, which we have devoted to the diagnosis of tumors of the ovary, as complete as possible, we will now pass in review the various affections with which we may confound them.

1. **When the tumor is still in great part within the pelvis,** and when we cannot exactly follow its boundaries, we may for some time ask if the enlargement which we feel does proceed from a **solidified effusion in the folds of the peritoneum.** It is especially when the first development of the ovarian affection is accompanied by inflammatory affections that we shall entertain such doubts; and we must say that we have ourselves seen many cases in which a prolonged observation could alone settle the diagnosis. To come as near as possible to the recognition of the true nature of the disease, we must, in such a case, remember that ovarian tumors occur most frequently at an advanced age, after a prolonged abstinence from venereal pleasures; that generally for a longer or shorter time various disorders of menstruation are observed before the discovery of the tumor; that the latter often attains a very considerable volume, without occasional pain or other inflammatory symptoms; and that situated first in one side of the abdomen, it is not till a later stage that it approaches the median line. We know, moreover, that small tumors of the ovary, when they can be grasped through the abdominal walls, present still a certain mobility, that their form is generally round or slightly elongated, and that before having attained more considerable dimensions, they are soft and elastic when they only contain one or a few cysts, while solid tumors

are very hard and very resisting. Finally, it should not be forgotten that these tumors often increase very rapidly, and as it were, under the eyes of the physician. If it is remembered, on the contrary, that effusions into the peritoneum, sufficiently considerable to be recognizable by vaginal exploration, are always preceded by violent inflammatory symptoms, severe pains and an intense fever; that they are scarcely observed except during confinement; that the tumor is flatter, more extended, its borders being less clearly defined than those of ovarian tumors, we shall certainly have many very important signs in a diagnostic point of view. Then in the sequel, the effusion, after having remained some time stationary, if it does not completely disappear, at least diminishes little by little, and hardens by the process of organization, while the contrary takes place in tumors of the ovary by reason of the considerable development which the cysts undergo. From what we have said, it may be seen that in general it will be easy to distinguish these two affections from each other, especially when by vaginal exploration we find an effusion all around the uterus, for small tumors of the ovary are ordinarily encountered on one side of the uterus only, except indeed they are simultaneously developed on both sides, which takes place only in rare exceptional cases.

It may also be possible to mistake for a tumor of the ovary a **fibrous body of the womb** of the size of a hen's egg to that of a goose's egg, especially when it is situated in the posterior wall of the uterus, for that is very nearly the position which the small tumors of the ovary occupy. It suffices for the diagnosis, to remember, first, that the fibrous bodies of the womb of the size here considered, are, if they be not subperitoneal, almost always accompanied with sharp uterine colics, abundant hæmorrhages and leucorrhœa; secondly, that the substance of the uterus, and particularly of the vaginal portion, is ordinarily hypertrophied; and thirdly, if we have had a little practice in digital exploration, it is almost always easy to recognize the intimate union which exists between the tumor and the womb. But if in spite of all this the diagnosis does not appear well established, the introduction of the uterine

sound may perhaps remove our doubts. We refer for further details to what we have said in treating of the diagnosis of the fibrous bodies of the uterus.

As it has many times happened that a **retroversion of the uterus** has been supposed when there has been nothing but an ovarian tumor in the peritoneal recto-uterine cul-de-sac, we will only say in a few words, that in retroversion we can always follow the boundaries of the organ from the vaginal portion situated behind the symphysis pubis even to the summit of the organ in the excavation of the sacrum, so as to convince ourselves that the enlargement which is perceived in the posterior portion of the pelvis is immediately continuous with the vaginal portion. If, at the same time, the anterior wall of the abdomen is little tense, we shall easily perceive that between the hand placed upon the abdomen, and the finger introduced into the vagina, there is found nothing but the retroverted uterus and no abnormal growth whatever. If pregnancy is not suspected, one may then attempt to introduce the uterine sound. In this operation it is necessary for the cure of retroversion to turn the concavity of the instrument backward, and if the body of the uterus is not retained in its abnormal position by adhesions, it will follow the movements which are given to the sound, and it will even completely escape the vaginal touch when the point of the instrument is directed toward the anterior abdominal wall. It is unnecessary to state that the sound should not be employed if pregnancy be suspected; but, in such a case, the retroversion of the uterus would, by the compression of the bladder, rectum and the womb itself, occasion such pains, that they could never be caused by a tumor of such limited volume as those in question.

We might also in **retroflexion** take the **fundus of the uterus,** situated above the posterior wall of the cul-de-sac of the vagina, for an ovarian tumor developed in the recto-uterine cul-de-sac. Generally, however, it will be very easy to distinguish between these two affections, if we consider the violence of all the symptoms of uterine flexions, the very abundant hæmorrhages and metrorrhagias, the sharp pains like those of labor, the enormous secretion of the mucous membrane, and the tumefaction of the vaginal portion. The orifice of the

uterus is often, moreover, largely opened, the body of this organ is mobile, and yields to the pressure of the finger; finally the tumor completely disappears from the posterior part of the pelvis, when the sound is introduced into the cavity of the uterus, the concavity of this instrument being directed forward.

2. **When, on the contrary, the ovarian tumor is very voluminous, when it mounts very high into the abdominal cavity, and when it considerably dilates the abdomen,** it is necessary before making a definitive diagnosis to think of the possibility of the presence of the following maladies:

Composite cysts of the ovary, containing an inclosed liquid in great quantity, have often been confounded with **ascites,** and this surely would not so frequently have happened if it had not been forgotten that it is only in rare exceptions that ascites dilates the abdomen in an equal manner, when the patients are lying or standing. Furthermore, the intestines are almost always found, at least if they are not fixed by numerous adhesions to the abdominal wall, to float, so to speak, to the surface of the liquid contained in the abdomen. By percussion we recognize that they are pushed up near the vicinity of the umbilicus, when the patient is lying upon the back; while, when she has been for some time lying on her side, they are crowded toward the opposite side. The lumbar regions always give a dull sound upon percussion, if the ascites is considerable and the patient is in a horizontal position. The fluctuation is also much more marked and more uniformly spread over the whole abdomen in an ascites than in a case of multiple cysts, which alone might be thought of; the latter dilate, in an irregular manner, the anterior abdominal wall, through which more or less voluminous protuberances may be felt. We have several times seen, and this is not without importance for the diagnosis of ascites, that, in this latter malady, the womb and the cul-de-sac of the vagina have often a very low position; the uterus, furthermore, presents a very considerable mobility, in such a manner that the body of this organ changes place when a slight pressure is made upon the vaginal portion, and reciprocally the vaginal portion is seen to follow the move-

ments which are impressed upon the liquid contained in the abdominal cavity in percussing its anterior wall. We have never observed this sign in cysts of the ovary, and on this account we recommend it to the attention of our readers. In doubtful cases it is also necessary to consider the state of other organs whose affections may be the starting-point of the ascites, and we should never dispense with very carefully examining the heart, lungs, liver, as well as the urine. Let us further add that ascites, whatever may be the cause which has produced it, is much more frequently accompanied by anasarca than tumors of the ovaries, which often attain very considerable size without any serous infiltration being observed in the sub-cutaneous cellular tissue.

Pregnancy has also been many times confounded with a cyst of the ovary, and paracentesis has even been performed through the abdominal walls to afford an exit to the liquid whose presence was suspected. The easier the distinction between these two conditions seems even to persons of the most limited experience, the more difficult it is sometimes found in practice. We ourselves, in 1850, dressed for several weeks a patient afflicted with a very voluminous composite cyst of the ovary, before being able in a certain manner to recognize that it was not a pregnancy, and our illustrious colleague, Seyfert, after having examined the same patient, was compelled to share our doubts. The diagnosis is still more difficult when a tumor of the ovary is developed as rapidly as the product of conception contained in the womb. If, with all this, the patient, believing in the existence of pregnancy, takes the movements which are observed in the tumor according to the different positions of the body, or the peristaltic contractions of the intestines, for the movements of the child; if the solid tumors, situated in the walls of the cyst, simulate the outlines of the body of a child; if the fluctuation is not very evident, as sometimes happens in colloid tumors, cystosarcomata and cystocarcinomata, the diagnosis is more difficult, especially if the circulatory bruits are heard in the inguinal regions, if the patient is amenorrhœic, and if the epoch of the last menstruation corresponds to the presumed duration of the pregnancy. Add still further, that in consequence of the traction on the

uterus excited from below upward, the vaginal portion seems to progressively diminish, as happens in pregnancy. In like cases a prolonged and often repeated observation and a very attentive examination, directed especially to recognizing the various parts of the child, its movements, as well as the pulse of the fœtus, are alone capable of clearing up the diagnosis. Still, during the course of the disease, various morbid symptoms which do not in general accompany a normal pregnancy, always conduct the physician on the right track, and when the existence of pregnancy becomes constantly less probable, and when the symptoms, threatening the life of the patient, demand prompt relief, it will be proper to use a sound to procure an exact knowledge of the dimensions of the uterine cavity. But if it is difficult to distinguish an ordinary pregnancy from the affections which occupy us, this is much more difficult when we have to do with a case of **extra-uterine pregnancy.** When its existence is suspected we shall, in the first place, seek to recognize the various characteristic signs of pregnancy, and when we do not succeed in discovering them, we shall not be authorized to consider the tumor as an extra-uterine pregnancy except when its dimensions correspond to the duration of the pregnancy, and when the patient from time to time feels painful contractions in the abdomen, followed by an abundant flow from the genital organs, of a sanguinolent mucosity, and when this liquid contains a number of membraneous fragments which, by a microscopic examination, appear like detached pieces of the membrana decidua. The presence of circulatory bruits in a tumor relatively small, will not be without importance for the diagnosis. If such a tumor, of the nature of which there may yet be some doubts, should be accessible to digital exploration, and if by this means it be recognized that one portion of its contents at least is liquid, we should not hesitate to make a puncture by the vagina. In fact, we shall see hereafter that this is one of the best procedures for the cure of the cysts of the ovary, and on the other side, if the sac contained an extra-uterine fœtus, this same operation would be useful in causing the death of the child by the escape of the amniotic fluid; by thus preventing the rupture of the sac which otherwise would probably happen; and by permitting

the hope of a fortunate termination of this anomaly, that is to say, the ossification of the fœtus. We should not forget that the microscopical and especially the chemical examination of the liquid drawn by the paracentesis will remove all doubts on the subject of the diagnosis.

The solid tumors of the ovaries may also be mistaken for **fibrous bodies** of the womb, and reciprocally; and even very distinguished gynecologists, as Heath, Otter, Atlee, and others, have committed this error. In fact, after having commenced the extirpation of a tumor, which they supposed to proceed from the ovary, they were obliged to suspend their operation; for after having opened the abdominal cavity, they saw that they had not to do with a degenerescence of the ovary, but with fibrous tumors of the womb. We have above indicated, in speaking of the differential diagnosis of fibrous tumors of the womb, the signs which might serve to prevent like errors, and we refer to that chapter in order to avoid useless repetitions.

We find in various authors who have written upon the affections of the womb, numerous cases of **cystosarcomata,** having their origin in the walls of the **uterus.** We have never observed such cases, and consequently we know nothing by our own experience as to the differential diagnosis between these tumors and those of the ovary. We will then confine ourselves to citing the opinion of Kiwisch, who says that, in the cystosarcomata of the uterus, this organ and with it the vaginal cul-de-sac, adheres very intimately to the tumor; that the womb is situated in front of the tumor, and almost always in the median line; that it is hypertrophied at the same time that its cavity is elongated, and that finally the stricture of the tumor, as well as the various troubles that will perhaps be observed in the functions of the womb, will be the most important points to consider for the diagnosis. But, if we compare with this what we have said on the subject of the character of the tumors of the ovary, it may be easily comprehended that the different signs indicated by Kiwisch have not any great value. Fortunately the cystosarcomata of the uterus are so rare that no mention whatever is made of them in the works of the most distinguished gynecologists and professors of

pathological anatomy. Th. S. Lee describes an anatomical specimen of this kind belonging to the museum of the Royal College of Surgeons of London; it is a fragment of a uterus in which a voluminous cyst was formed. The cyst had been twice emptied by puncture; it had during life been considered as a cyst of the ovary. We also see cysts formed in the sub-peritoneal cellular tissue, or indeed in the middle of considerable peritoneal effusions. We have never seen such cysts sufficiently large to be recognized through the abdominal walls, and confounded with ovarian tumors. Still in the work of Th. S. Lee we find the description of a case of this character; it was a cyst which started immediately before the pancreas from the posterior wall of the abdomen, the cavity of which it filled almost entirely. It contained nearly eighteen quarts of an opaque and whitish fluid, in which were found numerous balls of hair, mingled with calcareous and fatty matters. In the left side of the cyst a mass was found composed of bone, teeth, etc., and which much resembled an incomplete fœtus. This tumor presented during life all the characters of an ovarian cyst. It had, however, no relation with the genital organs, for it was exterior to the peritoneum. We do not venture, as we have no personal experience upon this subject, to decide if it is possible, in a clinical point of view, to distinguish such cysts from those of the ovary; still it seems to us not very probable. It is the same with tumors which are developed between the layers of the mesentery, and which are formed of cysts, cancerous deposits, fibrinous exudations, or adipose accumulations, and which, when they have attained a considerable development, may descend into the inferior strait of the pelvis, and simulate an ovarian tumor. Into all these different cases we should examine with great attention the condition of the functions of the genital organs, as well as the position and the degree of mobility of the womb. We would not, however, affirm that we can even thus arrive at a certain diagnosis.

A considerable hypertrophy of the spleen may also lead us to believe in the presence of an ovarian tumor, when the inferior border of this organ descends into the pelvis, and when its outlines can no longer be traced through the abdominal

walls. But the leucæmic aspect of these patients, the intermittent and prolonged fever which is the ordinary beginning of this affection, will, in the majority of cases, render the diagnosis easy, especially if it be remembered that the anterior border of the spleen may be recognized by its very marked hilus, and that generally these tumors have no influence upon the position and functions of the genital organs which may be perceived through the vagina.

The **pathological alterations of the kidneys** and the acephalo-cysts of the liver rarely attain sufficient size to resemble ovarian tumors.

The **collection of fecal matters in the cæcum or sigmoid flexure** differ from ovarian tumors by their variable size, their sometimes complete disappearance, their irregular outlines, the colics and meteorism which accompany them, as well as by the absence of certain troubles affecting the genital organs. If there should be any doubt, recourse should be had to lavements and purgations. The dilatation of the abdomen, from a **collection of gas in the intestines** will never be the cause of an error of diagnosis provided that percussion is made with some attention. But on the contrary cysts of the ovary may be taken for meteorism when the air shall have penetrated into their cavity, either by a perforation of the walls of the cyst and of the intestine, or by spontaneous development as a consequence of a decomposition of the matters contained in the cyst. But in such a case, even when by percussion of the abdomen a tympanitic sound is met with in the region of the cyst, the diagnosis will have already been settled in a certain manner, or else we can easily determine the presence of the ovarian tumor by the other symptoms which arise in the course of the malady and have been already indicated several times.

We ourselves saw, in 1849, at the gynecological clinique at Prague, a case in which a **very distended bladder** filled with urine was mistaken for a cyst of the ovary. A woman, aged 54 years, affected with cancer of the womb, and who during many weeks had suffered from ischuria, had presented at her entrance into the hospital, a tumor in the left side of the abdomen of the size of a man's head, which at the first examination was taken for an ovarian cyst. During the vaginal

exploration this tumor completely disappeared under the influence of pressure exerted by the hand placed upon the abdomen. Soon the patient complained of a cutting pain in the abdomen catheterism was performed and there flowed off more than three pints of normal urine. A rupture of the bladder was diagnosticated, and to avoid a new effusion of urine into the abdomen, the patient was frequently catheterized. The next day we were astonished to see flow through the sound more than eleven quarts of a reddish yellow liquid, very rich in albumen, having but a feeble order of urine, and which could not but proceed from the abdominal cavity. At the same time the symptoms of a circumscribed peritonitis were perceived; but these disappeared at the end of three days, and the vesical region alone remained painful to the touch. But soon symptoms of a croupy cystitis were seen to be developed with an ammoniacal decomposition of the urine, and general collapse and anæmia caused the patient to succumb fourteen days after the rupture of the bladder. At the autopsy there was found cancer of the uterus and of the vaginal cul-de-sac, which was already in a state of decomposition; the bladder was much dilated, spotted, and discolored exteriorly, adhering to the neighboring organs. The walls of the bladder were hardened, of a deep grey color, and twice as thick as in the normal state. Its internal surface was completely covered with a quite thick layer of false membranes, and was moreover coated with a fetid sanies of a chocolate brown. Nowhere was there cancerous infiltration in the walls of the bladder, but the fundus of the organ showed an opening of the size of a dime, closed by the neighboring portions of the intestines. This interesting case under many aspects might serve to demonstrate that it is always necessary to use the catheter as soon as it may be supposed that the tumor in the abdomen proceeds from a dilatation of the bladder.

Finally, we ought, in closing, to mention **the tumors coming from the walls** of the pelvis (fibrous bodies, cancers, exostoses) which, rising above the superior strait of this organ, grow into the abdominal cavity, and sometimes simulate a solid ovarian tumor, especially when they are situated in one of the sides of the abdomen. The intimate adherence of these

tumors with some points of the pelvic walls will clear up the diagnosis; furthermore, with the exception, perhaps, of enchondroma of the ovary, the existence of which is still problematical, we do not know any tumor of this organ which can present a hardness and solidity like that of exostoses or even cancerous degeneration of the bones.

Termination.—We have already observed that there are ovarian tumors which, notwithstanding a duration of many years, do not exert any influence upon the general state of the organism. We see in this category especially simple cysts proceeding from the dilatation of the vesicles of Graaf, which rarely attain the size of a man's head, and which, even when that takes place, do not occasion any other symptoms than those which result from the compression of the neighboring organs. In fact, women affected with simple cysts of this character often attain an advanced age, without our perceiving during life a single symptom which would have made the presence of this affection to be suspected. The progress of composite cysts is less favorable. Still, we have many times seen composite cysts, cystosarcomata, and fibrous tumors of the ovaries very slowly develop and even remain stationary during many years without occasioning any disorder in the functions of the neighboring organs. Colloids, medullary tumors, and cystocarcinomata differ on the contrary by their rapid development, and because in a very short time they exhaust the patients, who at the close of some months are considerably emaciated, and succumb at length from marasmus.

We do not know any well authenticated case where such a tumor has completely disappeared either by spontaneous cure or by the use of pharmaceutical remedies; and we are obliged, relying upon numerous observations, to conclude that all the cases of encysted dropsy of the ovary cured by absorption, which are related by many authors, rest upon a false diagnosis. Such an absorption is not possible, except when the liquid contained in the cyst passes into the peritoneal sac, which cannot take place unless the wall of the cyst is broken in consequence of a too great dilatation or under the influence of an extreme pressure. By puncture indeed, or by the excision of a piece of the wall of the cyst, its contents can flow into the abdominal

cavity. We have, in fact, seen the disease terminating favorably in several instances; still it also happens as frequently that the presence in the peritoneum of the liquid proceding from the cyst causes a fatal peritonitis. In such a case, the termination, fortunate or unfortunate, depends, from what we have been able to see, principally upon the quality of the fluid thrown out. Indeed, a complete absorption is scarcely possible except when the latter is purely serous and little irritating, while if the liquid is bloody, purulent or sanious, the rupture of the cyst almost always produces death, especially if this rupture proceeds from an inflammatory softening of its walls, in which case we shall always have observed during life severe pains and a strong febrile excitation. A rupture of the cyst will be inferred when in the course of a very rapid development of the tumor, or after exterior violence (pressure, fall, or blow) the patient suddenly perceives a sharp pain in the abdomen, to which is added the feeling of a warm liquid spreading in the abdominal cavity. Besides, we observe in such cases a speedy collapse, syncopes, a very accelerated and thready pulse; and especially the consistency of the abdomen too suddenly varies; the tumor, which before had been tense and hard, is now soft and elastic, and sometimes even it can be no longer recognized by means of abdominal palpation. At length percussion demonstrates a liquid effusion into the peritoneum, while none existed before the rupture.

If the termination is favorable, the symptoms which we have indicated disappear little by little, the size of the abdomen diminishes in consequence of the absorption of the fluid effused into its cavity, and if the cyst is not filled up anew, we recognize through the flaccid and slightly resisting abdominal walls, in the place before occupied by the cyst, a tumor more or less voluminous, sometimes rounded, sometimes of an unequal surface. The strength of the patient gradually returns, the various troubles in the functions of the lungs, intestinal canal and urinary passages, disappear by degrees, and the health finally is completely reëstablished. But if the rupture leads to an unhappy result, we see, some hours after the accident, all the symptoms of a violent and very extensive peritonitis, to which the patient succumbs at the end of a few days.

The rupture of an ovarian cyst does not always produce an effusion into the abdominal cavity, for the latter may open a passage through other organs. It is more often through the rectum that this happens; we remember among others, a patient who, in 1849, was confined in one of the beds in the service of M. Hamernjk, at Prague, and in whom the ruptnre of the ovarian cyst was several times noticed, accompanied by a consecutive discharge through the rectum of a considerable quantity of liquid. With one other patient, in 1853, we saw a cyst of the ovary empty itself through the rectum during parturition. In all similar cases which we have had an opportunity to observe, we have always found the tumor descend very low into the pelvis; it was strongly distended, and the predisposing cause of the rupture was probably an inflammatory softening of the wall of the cyst and of the neighboring portion of the rectum, resulting from a considerable pressure exerted upon the part of the tumor situated in the pelvic cavity, while the occasional cause was a straining movement, efforts at defecation, an access of coughing, sneezing, etc. Let us add in addition, that all these cases of rupture had not an unfavorable issue; that is to say, they did not lead to the death of the patient. The cyst, however, always filled itself anew. The contents of the cyst also sometimes escapes through the vagina or the umbilical ring, but less frequently than by the rectum. We have never seen the perforation of the vaginal cul-de-sac; but in two cases of multiple cysts, we saw a part of the tumor form an umbilical hernia, and the walls of the cyst were much dilated and became continually thinner, until at length they burst and discharged a considerable quantity of liquid. With one of our patients the same thing was repeated as many as eight times in the course of a year. The patient died, and at the autopsy the anterior wall of the tumor was found adhering in almost its entire length to the anterior abdominal wall, and the cyst, which had thus been many times emptied, was of the size of a man's head.

Frequently, in the disease now occupying our attention, death occurs in consequence of a general dropsy. This often proceeds from a fatty degeneration of the kidneys, resulting from the compression of the great vascular trunks of the abdo

men by the tumor, which almost entirely fills the abdominal cavity. The circulatory troubles which result therefrom cause, at the end of a longer or shorter time, a hyperæmia of the kidneys, which at length becomes a true parenchymatous inflammation, in consequence of which we see albuminuria developed, and general dropsy. At other times this proceeds from the anæmia which almost constantly accompanies the malady; the blood frequently then contains a very considerable quantity of water, which gives rise to serous effusions into the sub-cutaneous cellular tissue, into the abdominal cavity and into the pleura, and which even causes death in consequence of an acute œdema of the lungs.

There would still remain to be mentioned the influence of ovarian tumors upon the course of pregnancy, parturition and the sequelæ of labor; but to avoid useless repetitions we refer to our *Treatise on Obstetrics*, 3d ed., Vienna, 1855, p. 543.

Treatment.—It is not our intention to indicate here all the methods recommended and employed by various authors for the treatment of ovarian tumors. If we, in passing, mention general and local blood-lettings, preparations of iodine, caustic, potash, hydrochlorate of lime, mercurials, and all the diuretics, we shall only have to add that we have never obtained from them any satisfactory results in the malady which occupies us. This is why we completely renounce all internal medication in this disease, and this so much the more, as the medicines to which the best results are attributed, that is to say, the mercurial or iodated preparations, necessarily exert, if they are employed for a long time, an injurious influence upon the entire organism, and thus prematurely undermine the strength of which the patients have so great need to resist the injurious and prolonged influence of the disease itself. We think that all debilitating medication should be rejected, for we are persuaded that the first duty of a physician is to sustain as much as possible the strength of the patients, and we shall succeed much better if we regulate the various functions of the body by a well understood hygiene than by any medication whatever. The physician ought, first of all, to remove from the patient everything which may occasion or keep up a congestion of the affected organ, for it is known that a prolonged

hyperæmia of the organs of the pelvis forms the ulterior development of the tumor. He ought, consequently, to combat the often very obstinate constipation which accompanies this disease by saline laxatives, and make the patient perceive how necessary it is to maintain all the organs of the pelvis in their physiological state by out of door exercise, and by nourishing and easily digested food, and especially by moderation in venereal pleasures, for any excess will be always accompanied by a hyperæmia of the organs of the pelvis, which would favor the development of the tumor. When, in spite of the hygienic precautions which we have indicated, we observe symptoms of a hyperæmia, or of a veritable inflammation, we may have recourse to local blood-lettings, and for that we must prefer to apply a few leeches upon the vaginal cul-de-sac, because here the blood-letting affects the vessels nearest to the diseased organ, and because experience has demonstrated that such an emission, even when it is not very considerable, acts much more promptly and in a more lasting manner than if we apply the leeches upon the abdominal walls. We should prefer, on the contrary, this latter method when the symptoms indicate that the seat of the inflammation is in the superior regions of the hypogastrium. Local blood-lettings are also very good when the catamenial congestion is accompanied by pains in the abdomen, meteorism, a frequent desire to urinate, and a slight febrile movement, and when the natural sanguineous discharge is insufficient or even completely wanting. But for the reasons above indicated we always reject general bleedings.

But, when the tumor has attained a sufficient volume to cause a painful tension of the abdominal walls, we often may sensibly moderate the pains by tepid baths, by the application of emollient cataplasmata, or by frictions with unguents or narcotic liniments. When the patients are compelled to remain any time standing, or to employ themselves in domestic duties, it is well to sustain the abdomen by means of a well adapted bandage. Some physicians (Hamilton, Isaac B. Brown) have even wished to cure ovarian cysts by prolonged compression, but the hopes that this new method had raised have never been realized.

The mineral iodine and bromine springs of Kreusnach,

Reichenhall, Krankenheil, etc., have been much prescribed for the maladies now spoken of. We do not wish to deny that these baths may, in certain cases, be employed beneficially, inasmuch as the tumors may rest some time stationary, but we have never known them to have disappeared or even to have diminished, as some physicians have stated. We have even many times seen tumors sensibly augment during the use of baths, and the patients who have died shortly after their return from the baths have, perhaps, succumbed by reason of the congestion of the organs of the abdomen, occasioned by the too great heat of the waters employed for the baths, or the compresses. We therefore advise not to have recourse to these means when frequent febrile symptoms, an excessive sensibility of the abdomen, and a rapid augmentation of the volume of the tumor indicate the existence of a congestion, as well as in all the cases where, from the aggregate of the symptoms, we may suspect an affection of a cancerous nature. In such a case the ovarian tumor is a true *noli-me-tangere*, and the physician will relatively prolong the life of the patient by abstaining from all active treatment.

But, unfortunately, this is not always possible, for often the pains caused by the voluminous tumors attain such a degree that the life of the patient is truly in danger, and prompt relief is necessary; in this case, it is only by an operation, and not at all by medicaments, that we shall arrive at any result whatever.

The **operations** that we are now to consider are: the puncture of the cysts of the ovary through the anterior abdominal walls, puncture by the vaginal cul-de-sac, injection of irritant liquids, the excision of a portion of the wall of the cysts, and, finally, the excision of the entire tumor after opening of the abdomen.

A. **Puncture of ovarian cysts through the anterior abdominal wall** has for its object to diminish the volume of the cyst, by evacuating its contents, and to relieve the patients whom this tumor much incommodes, or whose life even is in danger; it is then but a palliative means; at other times, on the contrary, the final destruction of the cyst is attempted to be obtained.

It is unnecessary to add to what we have said upon the subject of the structure, the development, and the termination of the various ovarian tumors, that puncture cannot attain this last object except it is performed upon a simple cyst. If, on the contrary, the tumor is a composite cyst, a cystosarcoma, a colloid tumor, or cystocarcinoma, the puncture will never give a completely favorable result, either because the numerous vessels of the walls of the cyst rapidly secrete a new accumulation of liquid, or because, if the punctured cyst should not be filled anew, the neighboring cysts are no longer arrested in their development, and may rapidly increase. But even in simple cysts, a puncture through the abdominal walls does not always lead to a definitive cure, because ordinarily the puncture cannot be made sufficiently low for all the liquid to flow out. In fact, if a part of the liquid remains in the cyst, the walls of the latter cannot be applied to each other, which is necessary for the obliteration of the tumor, and the liquid continuing to be secreted, though often very slowly, always finishes by filling the cavity again. If then we wish, by puncture, to obtain a radical cure, it should always be made through the vaginal cul-de-sac, for in this manner the liquid can completely flow out, and we then find the condition necessary to produce the complete obliteration of the cyst. But the vaginal puncture is not always possible, for the anterior portion of the tumor does not always descend sufficiently low to be perceived through the vagina, which, however, is necessary if we do not wish to run the risk of thrusting the trocar into the abdominal cavity. We shall then be sometimes compelled to have recourse to abdominal puncture, and we shall the less hesitate to practise it, as in a great number of cases this operation has furnished the most favorable results. We can even cite two cases in which, for a simple cyst, we have performed abdominal puncture, final occlusion and obliteration of the cyst being obtained.

In consequence, we do not hesitate to recommend this operation in all the cases where the aggregate of the symptoms indicate the presence of a simple ovarian cyst of a considerable size, much incommoding the patient, and when the vaginal

puncture, the results of which are surer, is not possible, because the tumor does not descend sufficiently low into the pelvis to be accessible to the touch by the vagina.

From what we have been able to see, the radical cure of cysts of the ovary by the method indicated is very rare, when the tumor much exceeds the size of a man's head, and this is a fact to be considered before choosing the treatment. Indeed, for voluminous cysts, recourse will not so often be had to a useless and sometimes injurious operation if it be remembered that after the puncture they ordinarily refill in a very short time, while the enormous quantities of liquid drawn off, take away from the organism the proteinous substances necessary for the sustentation of the forces, and these punctures which it is often necessary to repeat at short intervals, may be the cause of an inflammatory softening of the walls of the cyst, and may even produce or at least hasten death, by the internal hæmorrhages, or the extended peritonitis which sometimes result. This is why we think that we ought not to puncture the ovarian tumors, filled with liquid, and whose volume is greater than that of a man's head, unless when the tumor much incommodes the patient by its enormous dimensions, or where life is really in danger in consequence of the compression of important organs, as the lungs, bladder, stomach, rectum, etc.

Some authors have said that the puncture was indicated whenever a rupture of the cyst was to be feared; but we answer that we have no sign by which we can recognize the imminence of such a danger, and that, even when this may be, puncture will be the best means to hasten this catastrophe by augmenting the inflammation and the softening of the walls, which are the most frequent cause of ruptures.

If what we have said is regarded, and when the voluminous tumors of the ovaries are considered as a *noli-me-tangere*, the number of cases where an abdominal puncture is indicated will be much less considerable than is generally supposed. But we also think that by more rarely performing this operation, we may prolong the life of a much greater number of patients than when the presence of a cyst is considered as a sufficient indication to perform paracentisis. We refer those of our

readers particularly interested upon this subject to the often quoted work of Lee,[1] in which will be found the synoptical epitome, demonstrating that the puncture of the cysts of the ovary, as a palliative means, is very dangerous; that it is necessary to frequently repeat it when recourse is once had to it, and that from one puncture to another the relief which it procures always diminishes while the danger increases in proportion.

Furthermore, before deciding to perform this operation, we should remember that it is not at all so innocent as some authors have affirmed. We have already said that it is not very rare to see the puncture followed by inflammations of the peritoneum, by a very precocious marasmus, by a softening of the cyst, etc. But, further than that, we should not forget that it has many times happened that in plunging the trocar into the tumor, some considerable vessels have been divided, situated in the walls of the cyst, and that hæmorrhages quickly fatal have therefore resulted, either into the abdominal cavity or into the interior of the cyst itself. Sometimes we may reach one of the vessels of the mesentery situated between the anterior wall of the abdomen and the tumor, as happened to us in 1851, in a case where we performed, with the aid of Doctor Schierbinger, the puncture of a multiple cyst. The patient died about twenty-four hours after the operation with all the symptoms of internal hæmorrhage, and the autopsy demonstrated that we had opened a very dilated vein situated in the epiploon, which adhered to the anterior surface of the tumor. Sometimes also shortly after the operation, patients are seen to sob, have vomitings, faintings, delirium, convulsions, and finish by falling into a profound nervous prostration; this often occurs in consequence of the considerable tension and displacements which the organs of the abdomen undergo when a voluminous cyst has been very rapidly emptied.

The operation of **paracentesis** through the anterior wall of the abdomen does not ordinarily present great difficulties, and for that there is only need of a trocar of variable length and size according to the volume of the tumor, from four to eight inches, the canula of which should have a diameter of four

[1] Loc. cit., p. 202–213.

lines, so that liquids which are even somewhat dense may flow as freely as possible. It is further necessary to have a whalebone sound to introduce into the canula of the trocar, if it is obstructed by pieces of fat or clots of fibrin. Several small vases should be provided to receive the liquid, and a larger one to pour it into if a great quantity flows out. If there be not a sufficient number of assistants to exert with their hands a regular compression upon the abdomen during the flow of the liquid, we must, before the operation, pass around the body of the patient a band pierced with a hole at the place where the puncture is to be made, and which must be gradually tightened according as the abdomen diminishes in volume. It is needless to say that we should have at hand the analeptics necessary to combat syncopes.

For the operation we seat the patient in an ordinary chair if her strength permits, but if this position is not convenient, she may be laid upon the side, in such a manner that the most prominent part of the abdomen projects a few inches from the edge of the bed.

As in this operation it is important to puncture the wall of the cyst as low as possible, and as we shall hereafter see the puncture is almost always made upon the median line, it is well, to avoid wounding the bladder, to empty it by the introduction of the catheter. The spontaneous emission of urine is never so sure as that by catheterization, for with patients affected with ovarian cysts it is often incomplete. In fact, we have many times seen considerable quantities of urine escape by the catheter even when the patients had declared that they had completely emptied the bladder.

In choosing the place to make the puncture, we should remember that in truth we should open the tumor in its most inferior portion; but it is also necessary to avoid wounding the loops of intestines or the somewhat considerable vessels of the abdominal walls. As it is in the median line of the body that the larger ovarian tumors are the most exactly applied to the walls of the abdomen, and as, moreover, this region does not contain important vessels, we ought to generally choose for the place of puncture a point situated near the lower third of a line drawn from the umbilicus to the symphysis, and we should

not deviate from this rule except when we wish to puncture a smaller cyst situated more toward the side of the abdomen; when percussion demonstrates the presence of loops of intestine in the median line; or finally, when no fluctuation is found there, and, on the contrary, the abdominal palpation discloses solid tumors, as, for example, cystosarcomata and cystocarcinomata. In such a case we should choose for the place of puncture the spot where the fluctuation is the most apparent, where the percussion does not produce the tympanitic sound of the intestines, and where there is no fear of wounding a subcutaneous vein of any importance. It will only be in rare exceptions that we should choose the navel and there make the puncture, because it is situated much too high for us to hope for a sufficient discharge of the liquid. We think that this place ought not to be chosen for the puncture except when the umbilical ring is largely open and allows a part of the anterior wall of the cyst to escape, especially if we think we cannot open another larger cyst by choosing another part of the abdomen. It will suffice to mention here the case of a woman whom we saw in the hospital of Julius at Wurtzburg, and who, in the space of three years, had herself practised paracentesis twenty-two times by opening with a rasor the walls of a cyst, which made a hernia through the umbilical ring. In all the cases where the puncture is made through the navel, it is necessary, as we have above said, to make the patient lie upon her side, for it is thus easier to empty the cyst in a complete manner than if we operate upon a patient sitting in a chair. To practise paracentesis, the operator kneels before the patient; he stretches the skin with the left hand, seizes the trocar with the right hand, and with a movement of semi-rotation, introduces it sufficiently deep into the tumor to feel no more resistance, and consequently to be sure of having penetrated into the cavity of the cyst. The operation sometimes demands a very considerable force, when the walls of the abdomen and that of the cyst are very thick. When the trocar has penetrated into the cavity of the cyst, the stylet of the canula is withdrawn, and we prepare to receive the liquid, which immediately flows out if it be not too thick. It often happens that the canula is stopped by clots of fibrin or bits of fat, and the

the liquid is suddenly arrested, which also takes place when gelatinous or solid portions of the tumor are introduced into the canula. It is then necessary to remove the obstacle by several times introducing the whalebone sound, when the liquid flows again. It is particularly when the cyst contains colloid matters still somewhat softened that the flow of the liquid is frequently interrupted, and sometimes even in such case the operation is completely useless, because nothing can run out. Aside from the introduction of the sound into the canula, the compression of the abdomen by the hands of the operator, or of an assistant, will much facilitate the flow of the matter contained in the cyst; it also is the same with the violent efforts of the abdominal muscles in coughing, sneezing, straining, defecating, etc.

When a tumor formed by a single cyst has been opened, the interior wall of the abdomen is considerably shrunken—while when we have to do with multiple cysts, the diminution of the volume of the abdomen is not so complete, and varies according as the punctured cyst was a portion more or less great of the entire tumor. When in such a case a considerable quantity of liquid has flowed out, the skin of the abdomen collapses sufficiently to permit the recognition of the boundaries of the rest of the tumor, and the puncture thus becomes an adjuvant means to determine the nature of an ovarian tumor.

So soon as it is seen that nothing further flows, the canula of the trocar is withdrawn; and if the operation has been upon the patient sitting, she is removed to the bed, where she ought to lie upon her side. It is not then necessary to close the wound with a tight bandage, for even when nothing further flows from the canula, still many hours and even many days after the operation, the discharge is seen to continue from the wound. The liquid which thus escapes is sometimes the remains of the contents of the cyst, sometimes it escapes from the peritoneal sac; for, as we have already said, the voluminous ovarian cysts are frequently accompanied by ascites. When there is no further discharge from the wound, it may be covered with a bit of lint, which is maintained in place by adhesive strips.

When an important vessel is wounded by the puncture, and when, after having removed the canula of the trocar, a severe hæmorrhage is recognized, it may be made to cease completely

by applying compresses dipped in cold water or in a styptic liquid, by compressing between the fingers the vicinity of the wound, or by introducing into it a small cone of lint, which is fixed with adhesive plaster. In such a case, when all the above mentioned means did not suffice to arrest a smart hæmorrhage, we have stopped it by uniting the two borders of the wound by a strong pin, around which we wound thread in form of the figure 8.

If the patient faints, the physician should give all the stimulants necessary in such a case, and we will only add that syncope may often be avoided by preventing the liquid from flowing out all at once, by frequently stopping the canula and keeping it closed for a longer or shorter time. If after the puncture, inflammatory symptoms are observed, we must have recourse to antiphlogistic medication, remembering, however, that very often the patient is already very much weakened. When during, or immediately after, the puncture, the symptoms of anæmia are seen to rapidly increase, when blood is mixed with the liquid which flows out, or when pure blood even flows out in considerable quantity, we may conclude that quite a considerable vessel in the wall of the cyst has been wounded, and that the blood which it contained has flowed into the cyst. In such a case we found at the autopsy of women who died three hours after the operation, about three quarts of blood, half coagulated and half liquid, in the cavity of the cyst. The tumor itself was a cysto-sarcoma, and the trocar had entered its wall, whose thickness was several lines in a place where the veins formed, by their numerous anastomoses, a true cavernous plexus. When the symptoms of such an internal hæmorrhage are observed, the prognosis is almost always fatal, for beside the analeptic remedies and the application of cold compresses upon the abdomen, the physician does not possess other hemostatics whose action is at all sure. Several authors have advised, in order to prevent the cyst from filling anew, the application of a very tight hypogastric girdle; but this means has never succeeded in practice, which furthermore is easily understood, for it does not fulfill the conditions necessary for the obliteration of the cyst, as furthermore a girdle so much tightened is very inconvenient, and as it is impossible to pre-

vent its becoming wet by the liquid which constantly flows from the wound, which may cause catarrh, we shall not be blamed if we reject such a method of treatment.

We have already said that the puncture of the cysts of the ovary is ordinarily but a palliative means. At the end of a time, more or less long, the cyst is refilled, and it is known that the length of the intervals diminishes with the number of the punctures.

In very rare cases where the abdominal puncture is followed by a radical cure, we observe that the tumor, still quite large after the operation, gradually diminishes, and constantly becomes harder until through the abdominal walls we feel only a small insensible body, ordinarily situated upon one of the sides of the abdomen.

B. **The puncture of ovarian cysts through the vaginal cul-de-sac**, as we have already many times said, more often produces a radical cure than the other method just considered, and that especially because the cyst, opened in its lowest part, can empty itself more completely. If the puncture by the vagina was always possible, the abdominal puncture would soon entirely disappear from chirurgical practice; but, unfortunately, this is not the case, for the conditions necessary for this operation are met with in but few patients; in fact, it is rare that the lower portion of the tumor descends sufficiently low into the pelvis to be accessible to the vaginal touch, and, furthermore, in many cases where the tumor can be reached, it does not present in its lower portion any cavity filled with liquid, but only solid masses of a sarcomatous, colloid or cancerous nature.

When we wish to make the puncture by the vagina we must first of all assure ourselves that the trocar will find a cavity sufficiently large and filled with liquid. But, unless in rare exceptions, this will never be the case but in simple cysts, for as it is well known, in multiple cysts the cavities with more considerable dimensions almost always occupy the upper portion of the tumor. It results from what has been said that the operation in question will never be applicable except for simple cysts, whose inferior part descends sufficiently low into the pelvis, and which presents on percussion evident fluctuation,

which demonstrates the inconsiderable thickness of their walls. When these conditions are all fulfilled, paracentesis by the vagina will be much preferable to that by the abdominal walls, seeing that the results of the operation are more sure and more favorable, and that the dangers are the same in both cases. At least it is what the results of our own operations demonstrate. In fact, we have fourteen times performed puncture by the vagina; eight of our patients are completely cured, with two of them the cyst filled again at the end of some weeks, three of them were withdrawn from our observation, one died of typhoid fever two months after the operation, but the parents would not allow an autopsy to be made, and we could not form a judgment upon the result of the operation.

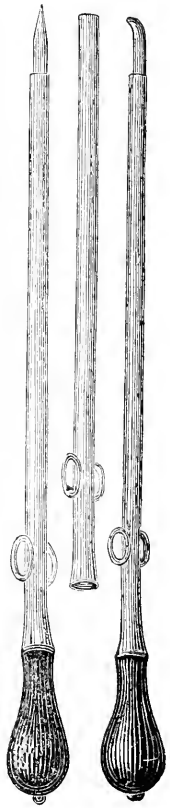

Fig. 89

Trocar for vaginal puncture of ovarian cysts. Bistoury for dilating the puncture

This is the method which we have followed in this operation, and of which we have been able to determine the practical advantages in a sufficient number of cases. The patient is half reclining, half sitting upon the operating bed, the feet rest upon two chairs, and two assistants hold the knees, separating them one from the other as much as possible. The operator then introduces the index finger of the left hand into the vagina, and seeks for the most prominent part of the tumor; he then places upon his finger the canula of a trocar ten inches in length, presses it firmly against the tumor, introduces the stylet and plunges the whole instrument through the vagina and the wall of the cyst, nearly two inches deep, into the cavity of the latter. After having withdrawn the stylet, the contents of the cyst flow out, and we may facilitate the flow by pressing upon the tumor exteriorly. In the majority of cases the contents are very liquid, and easily flow through the canula of the trocar; three times, however, we were, by reason of the density of the liquid, forced to dilate the aperture made by means of an incision. For this purpose we recommend the following procedure: Into the

canula of the trocar is introduced a bistoury *ad hoc*, with a broad back, and provided with a long handle, and this is made to enter about one inch and a half into the cavity of the cyst; the canula is then withdrawn in the direction of the finger resting in the vagina until the extremity of the bistoury, which protrudes one inch and a half from the canula, is found in the opening made by the trocar, then the incision is made from side to side until the place presents a length of from one to one inch and a half, and when, in spite of this, the contents of the cyst are so thick that they do not flow sufficiently, the point of a syringe may be introduced into the exterior extremity of the canula, which has been carefully left in place, and with the necessary precautions an injection of tepid water is made in order to dilute the contents of the cyst, and allow it to flow out more easily. Sometimes the operation is not followed by any reaction, and no symptoms of inflammation, general or local, are seen, the tumor punctured becomes constantly smaller, and by the end of a few days nothing further flows from the canula. In such circumstances toward the end of the eighth or the tenth day after the operation, sometimes even sooner, we may remove the canula and close up the opening; at other times twenty-four to thirty-six hours after the operation we observe symptoms indicating an inflammation in the interior of the cyst, in its wall or its peritoneal envelope. The patient has fever, she complains of extraordinary pains in the neighborhood of the tumor, and the liquid which flows from the canula or from the enlarged opening, becomes purulent, sometimes sanious, of a bad and fetid nature. In such cases there should be no delay in applying a number of leeches in proportion with the intensity of the symptoms. The painful part of the abdomen should be covered with emollient cataplasmata, and injections of tepid water should be thrown into the cyst, in order to prevent the purulent secreted or septic matters from remaining there. In three of our patients we have had to combat such accidents, but all the three were radically cured; at least, of the patients in question one was operated upon five years ago, the second, three years ago, and the third, two years ago, all living in Wurzburg, and have had no return up to this time. With all the patients upon

whom we have operated we have never seen any fatal accidents, such as abundant hæmorrhages or intense peritonitis; still we do not affirm that this will not happen, for in 1845 we were present at a like operation performed by Kiwisch upon a young girl of 19 years, who succumbed to a consecutive peritonitis.

When, after the vaginal puncture, the cyst refills, we do not see why the operation should not be repeated if the tumor presents the necessary conditions. It is thus that four years ago we operated upon a woman on whom Kiwisch had performed the same operation two years previously. The tumor had again attained the size of a man's head, and up to this time has not since been filled.

C. Another procedure strongly recommended of late for the radical cure of cysts of the ovary consists in making **irritating injections into the cavity of the cyst**, in order to excite an adhesive inflammation upon the internal surface, and thus to obtain obliteration. One of the most zealous defenders of this operation is Boinet. According to his advice, we first puncture with a large trocar, the canula of which is left in place so long as the liquid flows off; an elastic catheter is then introduced into the canula, of small size and furnished with two lateral openings, which ought to be retained in position after the removal of the canula. When the too thick consistence of the liquid prevents its flowing, injections are made by the catheter of tepid water or a weak solution of the iodide of potassium, the cyst is rubbed and pressed, and the patient is made to take several positions, in order to thoroughly mix the liquid of the cyst with that which has been injected, in order that the wall of the cyst shall be as much as possible in contact with the solution of the iodide of potassium. The sound is then closed with a stopper, maintained in its place by means of a band or adhesive straps, and watch is kept to allow from time to time the contents of the cavity to escape. These injections should be repeated every two or three days, but it is only when the secreted liquid becomes fetid that it is necessary to have recourse to it oftener. According to Boinet, the size of the cyst sensibly diminishes after a little time. It is requisite to often replace the catheter by a new one, but never before the

seventh or eighth day, for then the opening made by the puncture ought to have contracted adhesions with the abdominal wall, and the liquid contained in the cyst can no longer penetrate into the cavity of the peritoneum. Boinet counsels when the catheter is changed to always take a larger one, and to maintain the patient very tranquil during the operation, in order that if the cyst has not contracted adhesions to the abdominal wall, the catheter and injections may not enter into the cavity of the abdomen. Later, the catheter should be replaced by a metallic canula furnished with a tap. It is impossible to fix beforehand the number of injections necessary for a radical cure, and the composition of the liquid ought also to vary. At first we should take a liquid composed of 100 parts of water, 100 parts of tincture of iodine, and 4 parts of iodide of potassium. Afterward the quantity of the tincture of iodine may be increased in such a manner that there shall be two parts to one of water, and when the volume of the cyst is much diminished the pure tincture of iodine may be employed.

Boinet affirms that after such treatment he has never seen bad results; but the observations of a great number of gynecologists demonstrate the contrary. In the first place the cyst may after its puncture so contract that the point of the catheter springs out from the cavity and penetrates the abdomen, and the injection of irritating liquid would necessarily cause an acute peritonitis. Boinet is also in error, if he thinks that around the opening made into the cyst adhesions are always formed with the abdominal wall; but if these do not exist, we run the risk by changing the sound, of plunging it into the cavity of the peritoneum, where naturally the liquid would also penetrate. But even in the case where none of the accidents indicated occur, the injection of irritating liquids into an ovarian cyst is always dangerous in itself, for it is not in the power of the physician to determine the degree of inflammation which will result from the injection. If a simple puncture can even cause an inflammation of the tumor which may end in death, how much the more should we fear when we employ an operation whose first aim is to provoke just such an inflammation. If we are answered that this method is only proposed for simple cysts in which an intense inflammation is not often

noticed, we reply that a like accident is not at all impossible even in simple cysts, for numerous examples of it have been seen, and moreover, the diagnosis of the nature of an ovarian tumor is not at all so certain. We particularly remember a case that we saw in 1854 with Messrs. Schmidt & Langheinrich, where all the symptoms led one to suppose it was a simple cyst. Puncture had already been made several times, and the cyst was always promptly refilled. We then decided to follow the precepts of Boinet and to make injections; but immediately after the second injection we saw very serious nervous symptoms appear, the sac commenced to suppurate, and the patient succumbed five days after the operation. Although we had thought our diagnosis certain, the autopsy demonstrated that we were mistaken, for the tumor was not a simple cyst, but an enormous colloid of the right ovary.

It results from all that we have said upon the subject of injections that the dangers which this method presents are not compensated by sufficient advantages. Consequently, we shall do better to set it entirely aside, especially as many authors have demonstrated that it was not so sure as we have been told.

D. The **incision of ovarian cysts** has been practised with success by Ledran, Bégin, Velpeau, Bühring, and others. The principal aim of this operation, performed in a different manner by each of these surgeons, is, by an incision of more or less extent, to produce a continual issue to the contents of the cyst. Although we have had no personal experience upon this operatory procedure, we think, from the observations of other gynecologists, to be able to pronounce the following judgment: For simple cysts filled with very liquid matters, the abdominal puncture, and especially that by the vagina, is preferable to incision, for the latter require a greater and more dangerous wound of the peritoneum. When the contents of the cyst are more consistent, the incision certainly facilitates the discharge. Still we should consider here that such contents are met with only in composite ovarian tumors, and that by the most favorable results which can be expected from the operation, that is, the obliteration of the sac, there is not much gained; for we

know that after the operation, neighboring sacs, which before were relatively small, develop with great rapidity and render nugatory the result of an operation which may certainly compromise the life of the patient. Neither should it be forgotten that the opening made in the cyst, unless by chance it adhere to the abdominal wall, may, after the escape of the liquid, change its position in relation to the opening in the skin; the pus or the septic matters which, during the process of healing, may be formed in the cyst, will then necessarily pour into the abdominal cavity and peritonitis will inevitably result. In truth, attempts have been made before the operation to form adhesions with caustics and by repeatedly thrusting in needles, etc.; but all these means have up to the present been either entirely useless or injurious, for the circumscribed peritonitis which is thus sought to be produced may become very dangerous.

It is for the reasons just indicated that we do not at all recommend incision, and we think that it ought to be reserved for those cases where, having wished to perform the extirpation of the tumor, a procedure and operation which will be hereafter described, we are forced to give it up, because numerous and solid adhesions oppose an insurmountable obstacle. Then the incision of the skin being already made, we shall obtain by incising the cyst, a result at least partly satisfactory from an operation which otherwise would be completely useless, and there will not be any danger from the incision; for the presence of the adhesions will maintain the opening of the cyst constantly in connection with that of the skin.

E. But if the incision of the cyst is a very hazardous operation, and presents but very little chance of success, the same is especially true of the **excision** of a portion of the wall of the tumor, an operation which latterly Baker Brown and others have many times performed and have strongly recommended. The abdominal wall is open between the navel and the symphysis, the puncture of the cyst is made, a portion of its anterior wall is excised, and the wound is closed. Brown waits till the secreted liquid flows freely into the abdomen, and being absorbed by the peritoneum, is excreted by the kidneys. The cyst, he says, still secretes some time after the operation: then

it shrinks little by little, loses its properties as a secreting organ, and appears no longer but as a little tumor situated behind the abdominal wall.

Setting aside the dangers inherent to the operation itself, notwithstanding the contrary assertions of the English physician, in whom, furthermore, it is well known that we can have no confidence, let us only mention the danger that is incurred of causing a hæmorrhage into the abdominal cavity or into that of the cyst, by cutting in that way the often considerable vessels which the latter contains in its walls. Brown well says that we should not employ this method except for those cysts whose vessels are but little developed, but he does not add how, before opening the abdominal wall, we can recognize if the vascularity of the cyst is more or less considerable. Furthermore, the excision of a piece of the wall of the cyst will almost always be the cause of an acute inflammation, and then nothing will guarantee that the liquid secreted by the cyst, and which is poured out into the abdomen, may not become purulent or sanious, in which case the physician could do nothing to prevent the development of an intense peritonitis. In short, so long as we have not a source more sure of results favorable to this operation, we shall never follow in our practice the precepts of Baker Brown.

F. The **total extirpation** of the degenerated ovaries, or **ovariotomy,** has been, during the last twenty years, the subject of numerous discussions. Schlenker was the first to speak of this operation as a means of curing ovarian affections. He passed very lightly over this subject, which he only mentioned in a thesis upon a voluminous scirrhus of the ovary, in which he only proposed the question whether or not it would be possible to extirpate the ovaries by opening the abdomen, but he left the solution to the experience and sagacity of the heroes of the art. Later the same subject was taken by Tozzetti,[1] Willius,[2] Ulrich Peyer,[3] and de Haen,[4] and the latter arrived at the conclusion that it was dangerous to propose this opera-

[1] Prima raccolta di osservazioni medice. Firenze, 1732.

[2] Specimen medicum inaugurale. Basileæ, 1734.

[3] Act. helvet. phys. mathem. botan. med., vol. i. Basileæ, 1757.

[4] Ratio medendi, pars iv, cap. 3.

tion for fear lest it might come into the mind of some rash surgeon to try it to the loss of the patient: *Consultum igitur mihi videtur, hanc operationem haud ita promovere, ne forte temerarii nonnulli chirurgi eadem in humanam perniciem abutantur.* Van Swieten judges it less severely, for he says that it does not seem impossible to expect from this operation a fortunate result when the disease is but little advanced, and there are not yet any adhesions to fear.

If we have been well informed, it was Laumonier who, in 1781, for the first time performed this operation in Rouen with a fortunate result upon a woman aged twenty-two years. [Simpson[1] says "that this operation rather consisted of the opening of a pelvic abscess in a puerperal female by cutting through the walls and removing the ovary along with some of the other structures at the side of the uterus." Gross in his Surgery repeats this statement.] Ephraim M'Dowell [of Kentucky], also, in 1809, repeated this operation in America with equal success [he operated altogether thirteen times]. From that time the extirpation of ovarian tumors spread a little round about, and it was especially the English and American surgeons who recommended it, and even performed it sometimes with success. The French surgeons were less in favor of it, and Velpeau said in 1857:[2] "I disclaim extirpation; to legitimatize it we must threaten life, and to be rationally **practicable** it requires that the cyst should be of small size. Now, in this state life may continue for many long years. We do not envy then the ovariotomy of our brothers in America. French surgery is today in an excellent way. Though at the same time very bold and very prudent, it ought to renounce a venturesome operation. Before it can be admitted, it is necessary, in a word, that the remedy should be less dangerous than the disease." In Germany, it was especially Kiwisch who, by his teaching and example, sought to introduce this operation, and it is in a great degree the authority of this distinguished gynecologist which encouraged other physicians of Germany to imitate it. This is the reason that, in the last twenty years, our country has seen so great a number of similar operations.

[1] Clinical Lectures of the Diseases of Females. Med. Times and Gazette, 1860

[2] Bulletin de l'Académie de méd., vol. xxii., p. 192.

The works of Lee,[1] Kiwisch[2] and Ulsamer,[3] and others besides, contain all that may be desired upon this operation; the reasons for and against are carefully discussed by these writers, who give a synoptical table of the issue of all known cases, as well as a description of the various operative procedures. As we can add nothing new to what has been reported by these authors, we will be content with giving our opinion on the subject of a procedure which we have carefully studied, and which we have even put into execution, so that we are perfectly capable of judging thereupon.

We consider ovariotomy a surgical temerity; but if it succeeds, the patient, being otherwise completely incurable, speaks of it with great thankfulness, and the public is astonished. It is a rash operation, for from the numerous observations collected up to this time, the physician can never predict the issue with the same certainty which guides him in all the other important chirurgical operations, for experience has demonstrated that the extirpation of ovaries, performed by the most skillful operators, without any accident happening to disturb the operation, and with the best conditions for obtaining complete success, have caused the death of patients a few days and even a few hours after the close of the operation. Although the statistics which have been published determine a considerable number of cases, and thus demonstrate that the issue of this operation is not necessarily fatal, we cannot, however, pronounce in favor of a procedure by which Langenbeck has lost five patients out of six, and Kiwisch four out of five. In fact, while allowing that two in these eleven patients were radically cured, we ought to remember that the life of the nine others was considerably shortened, and if operators so distinguished as those whom we have named must publish so unfavorable results, shall not less skillful surgeons lose courage? And if we are answered that the results of ovariotomy are not so unfavorable, except because ordinarily this operation has not been performed until the tumor has attained a considerable size, when it has contracted adhesions with the neighboring

[1] Loc. cit., p. 200.

[2] Loc. cit., vol. ii., p. 140.

[3] Ueber die Ovariotomie. Inaugural diss. Würzburg, 1851.

organs, and when the strength of the patient has been almost completely exhausted, we will ask, in our turn, what intelligent and sensible surgeon would undertake so dangerous an operation at a period when the volume of the tumor is still so small that it gives very little if any inconvenience to the patient, and when the physician himself cannot decide if it will not remain stationary, or at least if it will not develop so slowly as to allow the patient to live many years? If practitioners agree with us upon this point, they will then be compelled to operate in like circumstances, and they will then from the beginning expect an unfortunate issue, or indeed, if it is decided to perform this operation at a less advanced period of the disease, it will only be at the express demand of the patient. Consequently some authors have declared that the physician, even when he be not well disposed in favor of ovariotomy, is still authorized to practise it when the patient overwhelms him with entreaties, and when, in spite of all objections, she persists in the wish rather to die than to support the pains which the disease causes her. We were once placed in this situation, and we yielded to the urgency of the patient, but we are perfectly decided not to do so in the future. In fact, it cannot be denied that every one, up to a certain point, has the right to decide for himself, but it is also certain that the right is not unlimited, and it is utterly absurd for a patient, in order to escape the torments of the disease, to wish to submit to an operation which, in all probability, will terminate by death. Still the patient is excusable, for her judgment is troubled by the pains which she has to support; but the physician cannot be excused who consents to become the instrument of a suicide, though an involuntary one.

It results from what precedes that we ought completely to reject ovariotomy, and that we will renounce the glory of having successfully performed such an operation until facts come to demonstrate that it does not terminate as frequently by death as we now think.

Still, in order that our readers may learn the method in which this operation is practised, we will reproduce here the description, according to Wagner, of the procedure of Langenbeck, as the one which now appears preferable.

The patient being placed as for the lateral operation for stone, the abdominal wall is cut through to the extent of two inches or two and two-fifths, cutting carefully layer by layer. The incision is made in the median line, at about an equal distance between the navel and the symphysis, or a little to one side when it is known which ovary is affected. So soon as the peritoneum is slightly cut, the incision should be dilated with a probe-pointed bistoury until it is as large as that of the skin. The hands of the assistants press the tumor against the abdominal wall, and after the incision of the peritoneum it appears at the wound with the white and brilliant appearance peculiar to it. It is maintained in this position by hooks, and the cyst is emptied by means of a large trocar. A slight pressure upon the abdomen prevents the exit of the intestines as well as the entrance of air or of liquid into the cavity. According as the cyst is emptied it is drawn out of the opening made either with hooks or with the fingers until the pedicle finally appears in the wound. This is then cut little by little, care being taken to tie singly each important vessel. The portion of the pedicle which remains is retained in the womb in such a manner that the part of the peritoneum which invests the latter shall remain in contact with that of the abdominal wall. The wound is then carefully closed by means of an interrupted suture which does not implicate the peritoneum, but some threads of which pass into the pedicle.

As to the subsequent treatment, let us add in a few words that the first duty of the physician is to prevent the peritonitis which frequently follows the operation, as well as the hæmorrhages which sometimes take place from the extremity of the pedicle of the tumor; and for that the best means is to apply upon the abdomen compresses dipped in ice-water, and frequently changed, while, when the inflammation is once established, recourse must be had to local blood-letting, to derivations upon the intestinal canal and the prolonged use of calomel. If through the incision a considerable quantity of liquid blood escapes, and at the same time symptoms of an internal hæmorrhage are observed, we may be sometimes forced to re-open the sewn-up wound, to seek for the vessel from which the blood proceeds, and to ligate it. The violent pains which

sometimes persist after the operation, as well as the nervous symptoms which often appear afterward, among which, in the first place, we see obstinate and frequent vomitings (which, when they here obtain a high degree, may be considered as a certain precursor of coming death) compel the use of narcotics, and especially of opium and its various preparations. The limited exudations, the collections of pus or sanies which may form subsequently during convalescence, ought to be treated according to the general rules of practice.

Addition by the French Translators.—We have reproduced here, as faithfully as possible, the opinion of Scanzoni upon the treatment of ovarian cysts. We have been careful to change nothing, for it is the view of a great practitioner, and we might almost say of all Germany. Still we have thought proper to add here, for our French readers, a very brief note upon the discussion which has lately, for several months, agitated the Academy of Medicine. It is especially relative to the treatment by **iodized injections**, of which, as we have seen, M. Scanzoni has not a favorable opinion.

In France, as in Germany, these injections, warmly recommended by Boinet, have found admirers and opposers. Velpeau himself, who had the great merit of introducing into surgical practice the use of iodine in closed cavities, declared in the Academy that he was not very much in favor of them for ovarian cysts.[1] Malgaigne thinks that the simple puncture ought to be adopted; then he adds: "As to the puncture combined with iodized injections, I will wait till its expediency shall be well established, for the cures, if there are any, are, I think, very rare, and the method in itself presents more than one danger."[2] Moreau also places himself in the ranks of those opposed to iodized injections; but he inquires whether it is necessary to have recourse to any operation whatever!—But, on the other side, numerous and carefully collected observations of positive facts have been reported in favor of the method of Boinet, and that by the most capable men. Cazeaux, Huguier, Jobert, Cruveilhier, Robert, Barth, Trousseau, Gimelle,

[1] Bulletin de l'Acad. impér. de méd., 1856, vol. xxii., p. 34.

[2] Ibid., p. 26.

Piorry, Demarquay, and others besides have all undertaken the defence of iodized injections, and this method has come out of the strife victorious. This was attained to such a degree that a rare occurrence in the discussions of the Academy—those who still doubted allowed themselves to be convinced, and we heard from the mouth of Malgaigne himself,[1] "that hereafter practitioners are sufficiently authorized to practise iodized injections in unilocular cysts with serous and liquid contents." Velpeau himself declared in favor of the method of Boinet; for he said, that the palliative puncture of the cyst is not a grave[2] operation, and that the puncture followed by an iodized injection is scarcely more dangerous than the simple puncture.[3] But if the safety, not to say the favorable action of iodized injections, is thus recognized, it is obvious that they are not susceptible of being employed in all cases with the same advantage. We will not debate here upon this question which was sufficiently discussed at the Imperial Academy of Medicine, but we give here a summary of the conclusions which were arrived at.

They are as follows:

1. The puncture called palliative does not cure unless in very exceptional cases, gives relief but for a little time, and exposes the patient to serious dangers, without offering, in compensation, the probable chances of a medium length of life.[4]

2. The puncture, followed by iodized injections, is, in the present state of science, the surest and least dangerous means of curing this hitherto incurable disease.

3. It is at present more than reasonable to have recourse to it in all the cases of cysts which are serous, hydatid and unilocular.

4. If these sero-purulent or sero-sanguinolent cysts offer less chance of cure, the results obtained by Boinet authorize the attempting a radical cure.

5. Cysts with numerous divisions, as all those whose liquid contents are thick or gelatinous, do not appear susceptible of cure by the new method.

[1] Bulletin de l'Acad. impér. de méd., 1856, vol. xxii., p. 306.
[2] Ibid., p. 200.
[3] Ibid., p. 268.
[4] Discours de M. Cazeaux, Bulletin de l'Académie, vol. xxii., p. 180.

6. The opportune treatment for operating is when the cyst, not having acquired a great size, commences to make the patient suffer or to exert an injurious reaction upon the functions.[1]

7. As much as possible the cyst should be attacked by the vagina rather than through the abdominal walls.

Finally let us add, according to Huguier,[2] we should respect as much as possible:

1. All the cysts which are developed about the age of fifty, and by a still stronger reason those which show themselves in aged women; still this is not an absolute contra-indication.

2. Those which, in women much less advanced in life, make no progress and cause no important functional trouble.

3. The multiple cysts, areolar and multilocular, especially if they are of great size.

4. The very voluminous cysts which have contracted extensive adhesions with the superior viscera of the abdomen or the abdominal wall, because that these adhesions are opposed to their final retraction.

5. Lastly, the cysts which exist in very debilitated persons.

These considerations suffice to show the difference in opinion between the majority of French surgeons and Scanzoni. For ourselves we do not discuss the question. We have given the opinions, it is for our readers to choose.

As to the other methods still more recently advocated, as the sub-cutaneous puncture, electricity, acupuncture, etc., if Scanzoni does not speak of them, it is because the limits of this work do not permit the introduction of details upon those methods of treating the diseases now under consideration, which have not yet a right to claim a place in medical science.

[In the chapter treating upon the removal of fibrous tumors of the uterus by extirpation, we have given on page 254 the other view of the case, and to that we will refer those interested in the operation of ovariotomy.]

[1] Discours de M. Robert, p. 125.

[2] Discours de M. Huguier, p. 110.

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PART FIFTH.

PATHOLOGY AND THERAPEUTICS OF THE AFFECTIONS OF THE VAGINA.

ART. I.—ANOMALIES AND DEFORMITIES.

§ 1.—*Absence and Rudimentary Development.*

THE **complete absence of the vagina** is never met with except conjointly with the absence or the rudimentary formation of the womb, and it is almost always accompanied by certain deformities of the external genital parts, and by a complete absence or a defective development of some one of the organs. After having opened the vulva by separating the labia, we do not find beyond the meatus urinarius any opening conducting into the interior of the pelvis; the entrance of the vagina is obliterated by a dense tissue which does not yield to the pressure of the finger.

We think that it is not always possible to distinguish the complete absence of the vagina from its rudimentary formation; sometimes the inferior part of this organ is transformed into a solid cord of cellular tissue while its superior portion presents a cavity, although of limited extent.

Another kind of rudimentary development consists in the existence of a very short cul-de-sac at each of the two extremities of the organ. Between those two cavities the walls of the vagina form but a cord, more or less long and completely solid, In these cases a shallow fossa is found between the labia minora from nine lines to two inches in length, and contracting as it runs backward. This deformity is allied to atresia, of which we shall hereafter speak, and in which the cavity of the

vaginal canal is divided into two superposed halves by a layer of cellular tissue or a transverse membrane of variable thickness.

The complete absence of the vagina, even when it can be diagnosticated with certainty, cannot be remedied by an operation. The rudimentary formation, on the contrary, may render the assistance of art necessary whenever there is an accumulation of menstrual blood above the obliterated part, which might excite fatal accidents. In treating of atresia, we shall speak more at length of these operations, which are among the worst and the most dangerous. We will only mention here that the rudimentary formation of the vagina produces these troubles because it most frequently exists simultaneously with analogous anomalies of the uterus and ovaries which render the menstrual flux impossible.

§ 2. *Defective Development.*

We have many times met with girls and marriageable women in whom the vagina presented, both in length and size, so little extent, that this condition might be considered as belonging to the state of infancy. It is not long since we had occasion to examine a woman of a flourishing and robust appearance, but suffering from amenorrhœa. The violent pains occasioned by coitus rendered its execution impossible. The pubis was completely without hair; the labia majora, too distant from one another below, were very little developed, as was also the clitoris; the meatus urinarius was found very far backward and upward, and the vagina so narrow that it was not possible to introduce even the little finger. We had difficulty in passing in a sound of four lines in thickness; it penetrated, however, to the depth of nearly five inches. We met with a still greater contraction in another of our patients; the entrance of the vagina was indicated merely by a little fossa, at the bottom of which was found an opening of the size of a pin's head; an ordinary grooved sound entered there to the depth of four and a half inches; we saw the menstrual blood trickle out from this opening.

Between these extreme degrees of constriction and the normal dimensions there naturally must be a great number of

intermediate ones, and if cases like those just described are rare, it happens, on the contrary, quite often that in women some years married coitus has never been able to be performed in a complete manner, in consequence of the smallness of the vagina. Notwithstanding that, it has been observed, even in these circumstances, that conception is possible, and the increase in size and the visible dilatation of the vagina which pregnancy produces seems to be the surest means of making this anomaly disappear. The following observation proves this: In 1851 we were consulted by a woman nearly thirty years of age, who, although eight years married, had till then been sterile. On exploration we found the vagina so narrow that scarcely were we able to introduce the little finger; she avowed to us that her husband had never succeeded in introducing the virile member. We judged that this condition could not be the subject of medical treatment, and we were very much astonished, on seeing the patient six months after, to find all the symptoms of a pregnancy of three months. The vagina was already so dilated as to permit the index finger to penetrate up to the os tincæ; this did not, however, take place without some difficulty and considerable pain to the patient. The course of pregnancy was regular, the accouchement normal, notwithstanding the considerable narrowness of the vagina, the dimensions of the canal increased sufficiently by the passage of the child to permit subsequently a regular coitus, and a little time afterward a second ception took place.

As to the diagnosis of this anomaly we will remark that an imperfect examination will render us liable to confound it with the spasmodic contraction of the vaginal canal. It sometimes happens that the walls convulsively contract around the finger. This contraction, which is particularly intense at the height of the constrictor muscle, is ordinarily of little duration, and disappears itself when the finger is left motionless for some minutes; it is furthermore generally accompanied by a very disagreeable sensation to the patient, and which she calls convulsive; in making the exploration, we can sometimes perfectly well perceive the vaginal walls insensibly contract, and finish by compressing the finger quite strongly. Still, this phenomenon scarcely is present

except with those women suffering from cramps of the vagina which are spontaneous and independent of external irritation.

The **etiology** of the abnormal smallness of the vagina is still very obscure. Sometimes it is due to an analogous condition of the internal genital parts; several of our patients suffering from this anomaly were affected with amenorrhœa. Still, we have met with it quite as often in subjects in perfect health, robust, and showing no menstrual difficulty.

Attempts at dilatation scarcely ever succeed in the high degrees of this deformity; in the less marked cases we recommend the use of hip baths and tepid and emollient injections, as well as the introduction and the permanent continuance of prepared sponges, at first small and gradually increasing. By applying them continually for many months, we have, at least in some cases, obtained good results.

§ 3. *Atresia.*

In a generic point of view, we distinguish two forms of obliteration of the vagina: congenital atresia and acquired atresia.

Congenital atresia is formed either by simple membranes ordinarily quite thin, transversal and dividing the vagina into two superposed divisions, or as we have already mentioned, the organ is changed into a solid cord in a very variable part of its length.

We have not, up to the present, met with the obliterating membranes except in the superior portion of the vagina, at the point of reunion of the middle third with the upper third. Of course we abstract the cases of imperforation of the hymen which are of another nature. Sometimes these membranes are as thin as a sheet of paper, not very tense, so that the finger can push them easily toward the bottom of the vagina; in these cases they are composed only of cellular tissue; at other times they have a thickness of from two lines to two-fifths of an inch, are much more tense, and resist the pressure of the finger. By microscopic examination they present, besides fibres of connective tissue, a greater or less quantity of smooth muscular fibres. Sometimes they have a little opening, and

then constitute the **incomplete atresias,** to which we shall return hereafter when on the subject of the divisions of the vagina.

When the vaginal walls adhere in a greater extent, we have already said they form a solid cord from three lines to more than an inch in thickness, formed of connective tissue and muscular fibres, and ordinarily containing but a small number of blood-vessels. This cord is the product of a primary formation, and the atresia is then congenital, or indeed it is not developed till later, in consequence of a more or less considerable adhesion which the walls of the vagina contract in touching. It is during confinement that these obliterations are most often formed, when the difficult artificial labors have led to ulcerous and croupy inflammations of the walls of the vagina, they are seen more rarely in consequence of the vaginal phlegmasias, which accompany typhus, dysentery, variola, etc. In 1850, we had an opportunity to observe at the surgical clinique of Prague, a woman with whom, in consequence of a puerperal vaginitis, a complete atresia was formed, obliterating the vaginal canal for the length of an inch and a half. We treated a young girl of seventeen years, in whom the atresia was developed after a very violent variola. The first patient was operated upon in our presence by Prof. Pitha, and died some days after of peritonitis in consequence of a lesion of the peritoneum resulting from the operation; as to the second patient, we know not what became of her.

Women affected with atresia ordinarily do not come to consult a physician, except when this anomaly impedes the free exercise of coitus, or else, when the retention and accumulation of the menstrual blood above the obliteration provokes severe accidents. These latter are nearly the same as those which we have described in speaking of atresia of the uterus. When the obliteration is only formed by a thin membrane, it sometimes happens that it is broken by the pressure of the blood, and that the patient is suddenly delivered from her sufferings. Such a fortunate termination cannot be hoped for in the second form of atresia, where the walls adhere in a greater extent. Abandoned to itself, the accumulation of blood continually increases, and always produces death; the patients

soon fall into a complete marasmus, or they succumb to a general peritonitis, due to the rupture of the uterus or the vagina, and to the effusion of blood into the abdomen, or else to the distention and the continued increasing dilatation of the part of the peritoneum which invests the uterus.

The **diagnosis** of **complete atresia** is not generally difficult, when we regard the anatomical relations which we have described. On the other hand, it is often very difficult to determine the thickness of the tissue constituting the obliteration; this is even entirely impossible so long as there is not a certain quantity of blood collected above the atresia, which, when there is only a simple transversal membrane, always dilates it more and pushes it toward the entrance of the vagina, in such a manner that by an exploration the finger meets a spherical tumor more or less distended, which, when the tension of the membrane is not too considerable, even presents a certain degree of fluctuation, and is distinguished from the dilatation of the inferior part of the womb by the circumstance that in no part can the least trace of the uterine orifice be found. To determine if we have to do with an atresia of the vagina or an obliteration of the external orifice of the uterus, we should have regard to this, that in the first of these anomalies, the vaginal canal is always sensibly shortened. When the walls of the vagina have contracted more extended adhesions, the touch will show that this organ has lost much of its length; further, the finger will never find the portion of the vagina situated above the obliteration so dilated as in the membranous atresia, and if it can perceive through the obliterating tissue the tumor due to the accumulation of blood, it will be but vaguely, in such a manner that it is often easy to recognize that between the extremity of the finger and the dilated cavity there must exist a layer of quite thick tissue. In two cases we succeeded in determining this thickness in a sufficiently precise manner by the following expedient: When the obliteration is not too high, we introduce the thumb into the vagina as deeply as possible, and at the same time we insinuate the index finger of the same hand into the rectum. If the accumulation of blood is somewhat considerable, the index finger will easily discover a tumor projecting into the concavity of the sacrum,

quite elastic and sharply circumscribed upon its inferior side. By strongly pressing the extremity of the finger forward, and at the same time directing that of the thumb backward, we may, by guiding in this position the index finger along the anterior wall of the rectum, determine with sufficient exactitude the distance which there may be between the inferior surface of the atresia and the lowest part of the cavity situated above it, and may thus form an idea of the thickness of the obliterating tissue. If the vagina be too long to allow the thumb to reach to the obliteration, we might employ the index finger of the other hand; but we have by experience found that this plan is less convenient than the preceding. Finally, in the cases where the presence of the hymen precludes the touch by means of the finger, we might substitute for it a metallic sound or a strong bougie.

When the presence of the vaginal atresia is well established, an operation can alone give the hope of delivering the patient from it. When there exists but a simple membrane, which is very thin and distended by the liquid accumulated above it, it will ordinarily yield to simple pressure from the finger, from a metallic catheter or an uterine sound. If this does not succeed, a pointed bistoury may be thrust in, and the opening enlarged on various sides, until the finger can easily pass in. As soon as the membrane is divided, a black blood flows out, of the consistence of tar, and of a very fetid odor. The flow takes place spontaneously, or in consequence of the contractions of the vagina, the walls of which were violently distended. It often lasts for quite a long time; in a case where we operated, the blood flowed during fifteen consecutive days. When the membrane is thicker and contains a considerable number of muscular fibres, it contracts immediately that the dilatation has ceased. This contraction is often so strong as to notably narrow the incision made by the bistoury; the two borders of the incision may even adhere anew, and thus annul, at least in part, the results of the operation. This once happened to us in our gynecological clinique at Prague. So we think that after the operation and the flow of blood it is well to keep open the orifice by means of a bit of sponge.

The operation for membranous obliterations is as simple and

its results as favorable, as the operations which are demanded by the more extended adhesions or the solid vaginal atresia, are complicated, difficult, and even dangerous ; still they cannot be avoided so long as the continued accumulation of menstrual blood jeopardizes the life of the patient. All the prudence and dexterity of the most skillful surgeon cannot always prevent lesions of the bladder, peritoneum and rectum, for it is very easy for the bistoury or trocar to deviate from the direction of the fibrous cord formed by the vaginal walls, and to penetrate into one of the adjacent organs. The sad results which we have always seen as a consequence of this operation, have led us to renounce all attempts to make a way for the flow of the menstrual blood by the artificial restoration of the vagina, and we have decided to practise in future, in such cases, the opening of the fundus of the vagina or the puncture of the uterus through the anterior wall of the rectum, an operation which, in all cases, is easier and less dangerous than the one now used.

For this end we should introduce a curved trocar, of large calibre, into the rectum, and plunge it into the most depending portion of the tumor. After the flow of the blood the canula may remain for some time to establish a durable communication between the rectum and the cavity containing the blood ; even though this will not succeed, and though the operation has to be repeated at the end of a certain time, this inconvenience would not make us renounce a procedure which very certainly offers much fewer dangers than the establishment of an opening through a vagina, obliterated in a great portion of its length.

To perform this last operation we first introduce a metallic sound into the bladder to avoid as much as possible the lesion of the adjacent organs. For the same purpose an assistant introduces his index finger into the rectum, passing his arm underneath the thigh of the patient. The operator then plunges his index finger as deeply as possible into the vagina, and with much managing penetrates in this direction with a sharp pointed bistoury through the tissue which obliterates this organ, but he will advance but slowly and by slight incisions. So soon as the touch and the exit of a black and fetid blood

show that the point of the instrument has penetrated into the superior portion of the vagina, dilated by the accumulation of liquid, the bistoury is withdrawn and we introduce into the canal which it has formed a large canula, by which an injection of tepid water is made to facilitate the flow of the liquid, which is often very thick. After the operation it is urgent that the canula should remain in the wound to prevent its obliteration, which would otherwise be the more likely to occur as the layer of the incised tissue is thicker.

Some surgeons, and Kiwisch in particular, have proposed not to employ the bistoury, but rather a curved trocar of large calibre, which, by a single thrust, is plunged through the obliterating tissue. If it is considered that this is often not only very thick, but also very dense, sometimes almost cartilaginous, it may be easily comprehended that in the first place the point of a trocar would have difficulty in entering, and that it would easily deviate from the desired direction, and might thus occasion fatal, or, at least, very dangerous lesions of the adjacent organs. Thus we consider this procedure much less proper than the ordinary method which we have here described.

§ 4. *Divisions of the Vagina.*

The deformities called **divisions,** are those where the cavity of the vagina is divided by transverse or longitudinal partitions.[1]

A. The **transverse partitions,** dividing the vagina into two superposed portions, do not in their anatomical disposition differ in any respect from the membranous atresias which we have already described. These are composed in greater part of fibres of connective tissue, among which are mingled a variable quantity of smooth muscular fibres. They are either membranous partitions which have in one point only, near the centre, a little opening; or else they form a circular border more or less projecting, and slightly contracting the vaginal canal. They are found the most frequently at the point of

[1] See Isid. Geoffroy Saint-Hilaire, *Histoire des anomalies de l'organisation* Paris, 1832. Vol. i., p. 551.

union of the superior third with the middle third of the organ, and appear in many cases to be congenital; in other cases they appear to be the result of complete membranous atresia; the blood which accumulates in great quantities above the latter dilates them more and more, and finishes by bursting them at some point. The following observation made at Prague, in 1849, at the gynecological clinique, seems to be a proof of this latter mode of the development of this sort of partitions. A young woman, lately married, suffered from the age of seventeen from amenorrhœa; she had, however, at regular epochs, well marked menstrual efforts, and afterward all the symptoms of chlorosis were developed. In her twenty-first year, the patient, after having been tormented some days with a very violent uterine colic, suddenly discharged a great quantity of black and fetid blood. After that the menstruation was regular, but scanty; she came to the hospital to consult us because coitus could not take place except imperfectly, being always accompanied by the most violent pains. On exploration, the shortness of the vagina struck us; at its superior extremity it was obstructed by a very thin, tranverse membrane, into which the finger could recognize no trace of an opening. It was only by minutely exploring with the speculum that we could perceive, almost in the middle of this membrane, an irregular opening of a funnel-shape, through which we could introduce a metallic sound of small calibre, to the depth of about an inch. Kiwisch dilated this opening by means of the fistula bistoury of Savigny, in such a manner as to be able to penetrate with the finger to the fundus of the vagina, in which was found the os tincæ perfectly normal.

These divisions of the vagina, which are also called **incomplete atresias,** have no practical importance except when the opening of the partition is too small, impeding the free discharge of the menstrual blood, and when the accumulation of the latter in the superior portion of the vagina provokes accidents that may also interfere with coitus as well as the entrance of the spermatozoa into the uterus. Still they do not place an absolute barrier to fecundation, when the opening is not too small, for divisions of this character have often been met with during gestation or parturition. For the various difficulties which they

may cause during parturition, we refer our readers to treatises on the art of obstetrics.

When the opening which the partition presents has a certain size, the touch will suffice to establish the diagnosis. It is otherwise when it is so small that the finger cannot perceive it. In these cases a minute exploration with the speculum can alone remove all doubts; it should never be neglected every time that a woman, whose vagina is very short, complains of menstrual hæmorrhages; these may, with the greatest probability, indicate the presence of an opening. To find this the more easily, we advise, after the observation of a number of analogous cases, that the vagina should first be carefully cleansed by means of injections of water and brushes of lint. In one case we should not have seen the opening, which was extremely small, but for a little core of mucus which projected from it; in another case where, during a long time, we had sought for it in vain, we discovered it only by making the exploration during the menstruation; we then saw the blood trickle out constantly at the same place. After this latter observation, we ought in difficult cases, and where exploration with the speculum had not till then given any result, practise it during menstruation; it is unnecessary to say that the vagina should previously be very carefully cleansed.

The cure of the malady which now occupies us is not possible, except by means of a surgical operation, which consists in the enlargement with the bistoury of the already existing opening. When this is sufficiently great to permit the introduction of the index finger, the latter will serve as the conductor to the blade. If, on the contrary, it is so narrow that it cannot be discovered but with the aid of the speculum, we should introduce a grooved sound, upon which the incision should be made. After the removal of the stricture, the treatment will be the same as after the operation of the complete membranous atresia.

B. The **longitudinal partitions** may extend from the bottom of the vagina to its entrance, in such a manner as to divide this organ into two lateral parts completely separated; in these cases there always exists a division of the cavity of the uterus. At other times they are shorter than the vaginal canal, and then offer very varied relations. The partition may exist in

the fundus of the vagina, and extend more or less high up in the uterine cavity; the two halves of the cul-de-sac have then each a uterine orifice, or it is the inferior part which is divided, and the fundus of the vagina remains simple; or, indeed, finally we find an irregular partition of a very variable extent, and pierced with many openings. In the complete divisions which extend even to the vulva, it is remarkable that each of these two canals has its hymen at the inferior extremity. All these deformities have a common origin; they are due to the fact that in the fœtus the two inferior extremities of the ducts of Müller do not reunite, but are more or less developed without being joined. When this arrest of development extends higher, there exists in addition to the divisions of the vagina, the anomalies of the womb, known under the name of the bilocular, bicorned and biparted uterus.

As the longitudinal division is complete or incomplete, one of the two canals is ordinarily larger than the other, and it is this one only which in coitus fulfills the functions of the vagina. Furthermore, this rule is not without exceptions; we have seen a woman, at the hospital of Prague, in whom the two halves of the vagina were sufficiently large to permit the introduction of a speculum indifferently into the right or left canal. [We have seen the vagina longitudinally divided into two equal canals in a prostitute who died from peritonitis after a labor at full time, and who had but three months previously aborted with a three months fœtus. There had been no suspicion of her double capacity previous to the autopsy.]

We ought also to mention a very peculiar anomaly of the vagina, and which is not very rare; these are cellular cords extending in a slanting direction from the superior part of one of the walls to an inferior part of the opposite wall. They must be considered as the rudiments of the form of atresia caused by a thick layer of cellular tissue, and in which the obliterating partition is not perfectly transverse, but sometimes oblique, in such a manner that the cul-de-sac extremities instead of being superposed are found juxtaposed.

The diagnosis of the divisions of the vagina ordinarily presents no difficulty; an attentive examination will always recognize them; an error will not be possible except when one of

the canals shall be little developed, and when the partition applied against one of the lateral walls of the organ shall escape notice at the exploration.

These difficulties have no practical importance except at times when they prevent coitus, or excite grave accidents during labor. In referring the reader to treatises on obstetrics we will only add that we can easily remedy the first of these inconveniences by cutting from below upward, by means of probe-pointed scissors, the whole length of the partition which divides and contracts the vagina. If an abundant hæmorrhage ensues it may be arrested by means of a tampon of cotton or lint dipped in fresh water or in an astringent liquid.

§ 5. *Cloacæ.*

Under the name of **cloaca** is designated the abnormal union of the urinary apparatus, sexual and digestive.

The least advanced form of this arrest of development is, without contradiction, that in which the openings of the urinary, sexual, and intestinal passages are found at the anterior wall of the abdomen. In these cases the place of their termination is in no respect distinguished by its structure from the other parts of the abdominal wall; it forms only a little depression, or else being a degree more elevated in its development, this little fossa differs from the contiguous parts by its delicacy and the fineness of its tissue. Ordinarily it is then taken for the bladder. But as frequently the duct of communication between the small intestine, and the umbilical vesicle (*canal omphalo-mesenteric*), the vagina, and when it exists, the rectum, terminate there, it is necessary to consider this excavation as the rudiment of a cavity common to all these organs, which, if there had been no arrest of development, would, at an early stage of fœtal life, have been separated from each other.

In a practical point of view, the forms of cloacæ which only unite in a common cavity, the outlets of the urinary apparatus of the internal organs of generation and of the intestinal canal are of a very great practical importance.

In the disposition of these organs they are distinguished by the following varieties:

A. Complete absence of the bladder; the two ureters open into the superior portion of the vagina, the configuration of which is sufficiently normal; behind, it communicates largely with the rectum.

B. The bladder is developed regularly, but the urethra, which exists only in a rudimentary state, pierces the anterior wall of the vagina, and opens into its cavity into which opens also the rectum.

C. The bladder and the urethra present no anomaly; the vagina communicates with the rectum.

D. The vagina is in communication with the urinary passages, but it is separated from the rectum.

E. There exists but a rudiment of the vagina, which opens at the vulva into a funnel-shaped cavity, into which also debouch the urethra and rectum.

The most frequent deformities are those in which the rectum opens into the vagina without anomalies of the urinary apparatus. The communication is established by a very narrow canal or by a very large opening; sometimes a very peculiar disposition of the muscular fibres are there found, a sort of sphincter obeying the will of the patient, and thus permitting the voluntary occlusion of the extremities of the intestinal canal.

Finally, we will mention some rare cases in which there has been observed the reunion of the vagina and rectum by the side of a normal anus. In adults, the diagnosis is established of the various forms of cloacæ by regarding the way which the matters contained in the rectum or bladder may take. No difficulty will be encountered when the communications between the bladder and the other organs are sufficiently large to be felt by the finger or seen by the speculum. The diagnosis is much more difficult when we have a new-born child, with an atresia of the anus, which may be complicated with the absence of the meatus urinarius, and when it is important to know whether to preserve the life of the infant, an operation is necessary or not. As these cases are not properly of our class, we refer the reader to special books upon the diseases of infants. We will only add that in the adult we do not think the operation requisite, except when the torments which the patient feels from involuntary defecation through the vagina are become

insupportable, and when the opening which makes the communication between the two organs is not too large, for in this latter case, even when we may have succeeded in establishing an artificial anus in the normal place, we cannot hope to prevent the passage of fecal matters by the vagina. Furthermore, operations of this character are not only very serious, but they are rarely crowned with complete success. They pertain, properly speaking, to surgery, and we will pass them by. In treating of vesico-vaginal fistula, we shall indicate the treatment demanded by congenital communications of the vagina and the bladder.

Art. II.—Descent and Prolapsus.

Etiology.—Prolapsus of the vagina exists by itself alone, or is accompanied by prolapsus of the womb. In the latter case it is **complicated.** We have already spoken of this accident in connection with prolapsus of the uterus. So now we shall only speak here of the cases where the fall of the vagina exists alone, independently of the uterine prolapsus.

The anatomical and physiological relations of the vagina so favor the displacement of this organ, that it is surprising that it does not occur more frequently. Every one knows that in the immediate neighborhood of the vagina, there are organs which at certain epochs undergo notable changes of position and size, and which thereby must of necessity greatly modify the normal relation of the vagina.

Let us, in the first place, consider the bladder. We know that the fundus of this organ rests for a considerable distance upon the anterior wall of the vagina. Hence we shall not be astonished that when it is frequently filled it insensibly dilates this part of the vagina and pushes it backward, thus contracting the canal of this organ. The customs of society impose upon women much more than upon men the necessity of retaining their urine for a long time; it therefore often happens that the desire for urinating, and the voluntary and violent closing of the sphincter excite with them spasmodic contractions of the summit and superior portion of the bladder. These contractions, pushing the urine with violence toward the fundus of this organ, cause a considerable tension of the bladder, as well as of the anterior wall of the

vagina, and may produce, by frequent repetition, a permanent dilatation of the vaginal wall, in consequence of which it loses its tonicity, relaxes, and at length forms a flaccid pouch projecting into the canal of the vagina. When the cause of which we speak continues to operate, this sort of diverticulum of the vaginal wall descends continually lower, passes at last through the vulva, and thus constitutes a partial prolapsus. Although all such cases have not for their sole cause the relations of the bladder which we have mentioned, it is however incontestable that these relations aggravate the action of the other forces tending to produce the same injurious effect.

The uterus also plays an important part in the etiology of this disease. We again abstract the fall of the vagina which accompanies the falling or the descent of the womb, and we wish here to speak only of the influence which certain alterations in the form of the uterus exert upon this anomaly of the vagina. The excess of volume and the temporary elevation of the inferior part of the womb which pregnancy occasions, produce a dilatation and a notable lengthening of the vaginal canal, which are always accompanied by a certain distention of its walls. It is during parturition that this distention attains the highest degree, and the puerperal retraction is not always sufficiently complete to allow the walls of the vagina to resume all the tonicity which naturally belongs to them. When pregnancies are frequently repeated, the walls become still more lax, more supple, and easily yield to the forces which tend to displace them. Sometimes, in such cases the simple pressure of the intestinal loops which rest upon the posterior part of the fundus of the vagina suffices to push gradually this portion inward and downward. This accident is still more to be feared when the contractions of the abdominal muscles, a too tight corset, etc., augments the pressure by violently compressing the intestines. When to all these favorable circumstances the difficulties of defecation are added, when the rectum remains for a long time filled with hard and voluminous fœcal matters, the posterior wall of the vagina is often so distended and dilated, that by elongation it is constantly pushed lower down, and at last projects out of the vulva. Independently of pregnancy and the puerperal state, the uterus may also occasion prolapsus of

the vagina, when neoplasms—as, for example, fibrous polyp i or pathological accumulations of liquid—have caused it to undergo a considerable augmentation of volume, which in disappearing leaves the vagina in a state of relaxation and atony. This relaxation is as frequently the consequence of a chronic leucorrhœa; for when this morbid condition has long continued, the softening of the mucous membrane is often communicated to the muscular coat and to the cellular tissue of the vagina, which binds the vagina to the adjacent organs, and which, when it is simultaneously the seat of a serous infiltration, no longer sufficiently fixes this organ to maintain it in its normal position.

We know that the constrictor muscle constitutes in the inferior part of the vagina a considerable contraction in such a manner that, when its activity is not altered, it is scarcely possible that a portion situated above could overcome its resistance. If then there be a prolapsus of the superior two-thirds of the vagina, it is necessary that this muscle should be completely relaxed, or at least does not possess the degree of contractility characteristic of the normal state. We do not think that sufficient importance has been attached to this necessary condition of prolapsus of the vagina. It is true that often this alteration of the constrictor muscle is not perceptible except when a prolapsus of the superior portion of the vagina is already formed, but fully as often it precedes the displacement, and is never absent in a marked prolapsus.

Finally, we have yet to consider the complete and incomplete ruptures of the perineum which are very important in the etiology of prolapsus of the vagina. It is ordinarily said that the existence of a solution of the continuity of the perineum takes away from the inferior portion of the vagina the *point d'appui*, which it needs to maintain itself in its normal position, and that a prolapsus of this part is the result. It is possible that in certain cases this observation may be just; still, we are convinced that the retraction of the cicatricial tissue which takes place after the cure of the rupture, and which drags the inferior part of the vagina backward and downward, is of very much greater importance, and the simple absence of the *appui* can at the most explain the falling of a small portion of the inferior

wall, but not the considerable prolapsus, whose volume continually increases, which are so often observed after ruptures of the perineum.

Symptomatology and Diagnosis.—The most important symptom is the presence of a tumor situated between the labia majora and formed by the displaced vaginal wall. When the prolapsus is neither very considerable nor of very long standing, the part of the vagina which is exposed does not ordinarily present, in relation to its color and to the state of the mucous membrane, any notable alteration; still, it is not rare, especially after exposure to certain injurious influences, that its surface is reddened, excoriated, or even covered with deeper ulcerations. In more voluminous prolapsus, most often complicated with a falling of the uterus, the tumors remain during a long time exposed to the action of the atmosphere and to the friction of the internal surface of the thighs, it is continually moistened by the urine, etc., and its surface is soon covered with a thick layer of pavement epithelium, the mucous secretion completely ceases, or dries rapidly, in such a manner that the walls of the vagina are no longer smooth, and gliding to the touch, but rough and dry and often the seat of numerous and extended ulcerations.

Generally, it is the anterior wall of the vagina which is displaced; the prolapsus of this part forms a tumor projecting from the vulva and of a variable size, before the anterior surface of which the finger recognizes a cavity more or less deep which separates it from the anterior wall of the pelvis, while in running along the posterior surface of the tumor it meets the os tincæ, sometimes in its normal position, ordinarily, however, a little lower.

If it is the posterior wall which is descended, the tumor continues behind close to the inferior commissure of the labia, where it is only separated by a small sac of little depth able scarcely to contain the end of the finger. In gliding over the anterior circumference of the tumor, the index finger penetrates much deeper, and arrives at the os tincæ, which generally is also displaced.

When the prolapsus is formed by the anterior and posterior walls of the vagina, the fall of the anterior wall is ordinarily

the more complete; with rare exceptions, this displacement of the vagina is always combined with a considerable descent of the womb; the higher degrees of vaginal prolapsus are those which accompany the complete fall of the womb.

We have already said above, that to the prolapsus of the anterior vaginal wall there is often united a dilatation in the form of a diverticulum of the fundus of the bladder; the functional troubles which result therefrom are a frequent source of inconvenience to the patient. It also happens that the anterior wall of the rectum is drawn forward and thus forms a pocket in which the fecal matters are arrested; these harden while resting there, occasion an obstinate constipation, foster a continual state of irritation of the mucous membrane, and are thus the source of hæmorrhoidal accidents, mucous flowings, etc.

When conjointly with the displacement of the vagina, a prolapsus of the womb exists, there are united to these phenomena all the symptoms peculiar to the fall of the uterus which we have already described. Still, we will add that even when this organ does not undergo any deviation, it is often the seat of consecutive organic alterations, among which we most frequently observe parenchymatous metritis, catarrh of the mucous membrane of the neck, erosions and ulcerations of the os tincæ. It is unnecessary to add that these uterine maladies aggravate considerably the state of the patient.

Treatment.—In speaking of uterine prolapsus we have already mentioned the therapeutical means which the fall of the vagina demands. We have noted the various medicaments which may be useful, the operations which have been proposed; we have also described pessaries and other apparatus proper to sustain the vagina in its normal situation after the reduction. To avoid useless repetitions we refer the reader to what we have there said.

For Bibliography, see the article on *Settling Down and Prolapsus of the Womb*, p. 164.

Art. III.—Hernia of the Vagina.

We call **vaginal hernia** the displacement of the adjacent organs in consequence of which these project into the vagina,

and form there a more or less considerable tumor. We shall consider the **vesico-vaginal hernia,** the **recto-vaginal hernia,** and finally, the **entero-vaginal hernia.**

§ 1. *Vesico-vaginal Hernia.— Vaginal Cystocele.*

The frequent relaxation of the anterior wall of the vagina, which has just been considered, and the fall of this portion, which is the consequence of it, often occasion a dilatation in the form of a cul-de-sac of the portion of the bladder situated behind the neck of this organ. This dilatation is due to the intimate adhesion of the vagina and the fundus of the bladder, combined with the little mobility which the summit of this latter organ possesses. When the anterior wall of the vagina is displaced and descends toward the vulva it forms a pouch in which is dragged the corresponding part of the bladder, which in filling, projects into the vaginal canal, and there forms a circumscribed and very tense tumor. In other cases the disease commences by the deformity of the bladder which is then due to the fact that the superior part of the body and the summit of this organ are the seat of spasmodic and involuntary contractions, while the neck remains firm. The effect of these contractions is to force the urine toward the fundus of the bladder, which insensibly dilates and at length displaces the anterior wall of the vagina. Sometimes the diverticulum which is formed in this manner in the fundus of the bladder is very clearly separated from the rest of the cavity by a projecting border, in such a manner that this organ is composed of two distinct cavities, a superior, the largest, and an inferior, the smaller.

This cul-de-sac by its position below the level of the opening of the bladder and by the defective contractility of the dilated walls, prolongs the sojourn of the urine in its cavity, and when a vaginal prolapsus exists, it contributes much to augment it.

The inconveniences due to prolapsus are to be added to those due to the incomplete emptying of the bladder. There are lancinating and burning pains in the tumor and in the urethra which are especially violent in the latter during, and immediately after, micturition. Often the displacement of the fun-

dus of the bladder causes draggings upon the neck of this organ; there is then an almost continuous and excessively disagreeable tenesmus of the bladder. Another series of accidents proceeds from the catarrhal inflammation of the mucous membrane of the cul-de-sac, the prolonged continuance of the urine, its decomposition, its permanent contact, all provoke an inflammatory state of the mucous membrane which soon extends to the whole bladder and even to the urethra, in which the contact of the decomposed liquid exasperates the pains at each emission. The urine excreted is ordinarily very fetid and soon deposits an abundant sediment, consisting of mucus, uric acid, and urate of ammonia.

When the cystocele has attained a considerable volume, it appears between the labia majora in the form of a tumor of variable size, augmenting each time that the urine is retained in the bladder and disappearing or greatly diminishing after the application of the catheter. When the bladder is full, the tumor is soft, giving almost a feeling of fluctuation, and the finger easily ascertains that it is formed by the descent of the anterior wall of the vagina. When a male sound is introduced into the bladder, and its concavity is turned backward, the point of the instrument penetrates into the cul-de-sac and the finger carried over the surface of the tumor perceives it easily. In introducing the sound, the concavity turning forward, we do not often succeed in making it penetrate beyond the neck of the bladder. This stoppage may have two causes; either the urine accumulates only in the cul-de-sac which it dilates, the body and the summit of the organ remaining contracted, and the point of the sound strikes against the summit of the bladder; or else the state of permanent repletion of the fundus of the bladder removes the whole organ away from the anterior wall of the pelvis, draws it backward in such a manner that it assumes a position analogous to that of the uterus in its retroversion; the point of the instrument is then arrested by the anterior vesical wall.

The reduction of the tumor is a condition *sine quâ non* of the amelioration or of the complete cure of vaginal cystocele, a cure which is very rare, and for which we can scarcely hope except in very recent cases. According to our experience, the hystero

phore of Roser,[1] with the modification which we have made in it, best answers this end. We second the action of this instrument by combining with it astringent vaginal and vesical injections and hip baths of the same character. For the vagina we choose a solution of the perchloride of iron, for the bladder a slightly concentrated solution of the nitrate of silver. To the hip baths may be added a decoction of nutgalls, or oak bark, sugar of lead, etc. When an excess of sensibility of the bladder or vagina does not allow the employment of the apparatus of Roser, we may recommend the patient to lie on the back, and we may attempt to prevent a too great dilatation of the fundus of the bladder by making frequent use of the catheter, and letting it remain for some time; its action will be seconded in an efficacious manner by the introduction and continuance in the vagina of a soft sponge, moistened in an astringent liquid, which offers an obstacle to the descent of its anterior wall.

But, after having employed it sufficiently long, even although this latter method does not suffice, it has however this good result, that it diminishes little by li tle the too great sensibility of the parts in such a manner as to render possible the subsequent application of Roser's apparatus. The latter hinders the fall and dilatation of the fundus of the bladder, prevents the accumulation and decomposition of the urine, and gradually delivers the patient from the inconveniences which are caused by the retention of this liquid and the inflammation of the vesical and urethral mucous membrane which are the consequence.

Bibliography.—See *Settling down and Fall of the Womb*, p. 164. Also, Burns, in Astley Cooper. The Anatomy and Surgical Treatment of Abdominal Hernia, p. 64.—Rondet, Mém sur la cystocèle vaginale. Paris, 1835.—Malgaigne, Journ. de chir. Nov. 1845.—Forget, Cystocèle vaginale Bull. therap. Jan. 1844.—Kiwisch, Klin. Vortræge, Bd. ii., p. 410.—Golding Bird, Prolapsus of the Anterior Wall of the Vagina. Med. Times, Jan. 1853.—Scanzoni, Klin. Vortræge. Prague, 1855, p. 282.

§ 2. *Recto vaginal Hernia.—Vaginal Rectocele.*

In speaking of prolapsus of the posterior vaginal wall, we

[1] See the article on *Descent and Fall of the Womb*, p. 164.

have already made the remark that the inferior part of the anterior wall of the rectum often yields to the traction exerted upon it by the vagina, and thus undergoes a cul-de-sac dilatation which constantly goes on increasing and at last becomes so considerable that the pouch formed by the rectum protrudes from the vulva with the vaginal prolapsus. This displacement sometimes does not trouble the patient in any manner; but it often becomes a serious infirmity, the fecal matters are arrested in the diverticulum of the rectum, remain there, become dried and excite a state of permanent irritation of the mucous membrane, which either becomes the seat of a chronic catarrhal phlegmasia or provokes by the varicose dilatation of its veins all the symptoms of hæmorrhoids. We recall a case of rectocele in which the posterior wall of the vagina formed between the labia majora a tumor of the size of the fist, which contained the extremity of the anterior wall of the rectum filled with round and very hard fecal matters. The index finger, introduced by the anus, penetrated almost its entire length into this cavity, and the extremity of the finger could be plainly perceived through the walls of this tumor. This exploration is the surest means of establishing the diagnosis; the finger carried into the rectum easily determines the pocket which the anterior wall forms; it always enters there immediately above the anterior border of the sphincter.

For the **treatment** of rectocele we refer the reader to what has been previously said in relation to prolapsus of the uterus and vagina.

Bibliography.—Leon Coze, De la rectocèle vaginale. These. Strasbourg, 1842. —Malgaigne, Mem. de l'Acad. de méd vol. vii.—Kiwisch, Klin. Vortræge. Bd. ii., p. 416.

§ 3. *Entero-vaginal Hernia.— Vaginal Enterocele.*

When a relatively extended portion of the loops of the intestines penetrates into the recto-vaginal cul-de-sac, and when the walls of the fundus of the vagina possess a suppleness and an abnormal tension, they yield to the pressure made upon them, and descend into the vaginal canal. There may occur a complete inversion. The fundus of the vagina is pushed

between the labia majora where it forms a spherical or pear-shaped tumor, very tender and filled with intestinal loops. It is excessively rare that hernia is developed between the bladder and uterus; at least we have never observed this accident. Sometimes the prolapsus of the vagina is the primitive affection, and it is not till later that the intestines fall into the sac formed by the posterior wall of this organ.

As long as the hernia does not appear exteriorly we think that it is difficult to distinguish it from a simple descent of the fundus of the vagina, and it is only when the tumor is very voluminous that the touch can recognize the presence of the intestine or of the epiploon. But so soon as the tumor appears at the vulva, percussion will not permit any doubt.

We have never observed that vaginal hernia was the cause of great inconvenience; still some authors relate that this displacement is accompanied sometimes with derangements of digestion, vomitings, meteorism, an obstinate constipation, etc. The symptoms of strangulation have never been seen, except during parturition.

Obviously it is always necessary to attempt to reduce the tumor, and to seek after the reduction, to give a proper support to the fundus of the vagina. In connection with uterine and vaginal prolapsus, we have already described the treatment which may be adopted with advantage.

Bibliography.—Garengeot, Mém. de l'Acad. de chir. Paris, 1753. vol. ii.—Leblanc, Précis des opér. de chir. vol. ii., p. 459.—Stark, Diss. exh. quædam de hernia vaginali, etc. Jena, 1796.—Sandifort, Obs. anat. path. Lugd. Bat. 1777. Lib. i. p. 65.—Kiwisch, Klin. Vortræge. Bd. ii., p. 415.

Art. IV.—Fistulas of the Vagina.

The anatomical relations of the vagina show the facility with which the solutions of continuity of this organ spread to its appendages, and how communications are established between this canal and the bladder, the urethra or the adjacent parts of the intestinal tube. Accordingly as the vagina communicates with the urinary apparatus, or with some point of the intestine, we distinguish urinary fistulas from stercoral fistulas

of the vagina. Although these affections appertain to surgery, properly so called, they are of so great importance to the sexual functions of woman, that we think proper to make it the subject of two special articles.

§ 1. *Urinary Fistulas.*

Anatomy.—The solution of continuity may lead directly from the vagina into the bladder; the fistula is then **vesico-vaginal**; or it may be found in a part of the vagina corresponding to the urethra, **urethro-vaginal fistula.** The first is the most frequent; the perforations may occur at all the points of the base of the bladder. Their extent is very variable; there are those which are scarcely of the size of a pin's head, and elude both sight and touch, while others easily allow the two fingers to pass through, in such a manner that every portion of the base of the bladder which corresponds to the vagina is completely absent, and when these two organs no longer form but a single cavity divided into two superposed halves, by a slightly projecting border. Fistulas of this extent ordinarily have a more or less regular round form, while the smaller perforations are oftener oval, or only present a longitudinal or crescentic fissure. The borders of the opening, when this is not due to cancerous ulcerations, and when the affection is recent, are always thin and loose, while when the disease is older, they are thicker, covered with callosities and are distinguished by their hardness from the neighboring parts.

The bladder not being able to retain but a very small quantity of urine, if any at all, its walls remain in a permanent state of contraction, the muscular coat soon becomes hypertrophied, and the cavity insensibly diminishes in capacity, in such a manner that even when the cure of the fistula succeeds, a considerable time elapses before the bladder can contain any considerable quantity of liquid. The urethra also often contracts; we have even treated in our gynecological clinique a woman in whom all the portion of the urethra situated in front of the fistula was completely obliterated in consequence of an inflammatory action of the mucous membrane.

Etiology.—We have most frequently observed vesico-vaginal

fistulas in consequence of a cancerous inflammation of the uterine neck which had spread to the fundus of the vagina and from thence to the wall of the bladder after having ulcerated or modified the tissues attacked and having destroyed in part its substance. The perforations arising from laborious confinements come in point of frequency into the second class. They occur in the following way: The head of the fœtus, long retained in the pelvis, strangulates between it and the pubis the anterior wall of the vagina and the base of the bladder, and provokes in these parts an acute inflammation followed by gangrene. Thus is formed an eschar of more or less extent which at length falls off and leaves a urinary fistula. Often also it is the operatory manœuvres required during labor which give rise to perforation, and particularly the application of forceps when they meet with difficulties, and when the exercise of a great deal of strength is requisite, or the perforation of the head of the child, when by extraction sharp and projecting splinters of the cranial bones rub against the vaginal wall, penetrating it and tearing its tissue. The lesions of the bladder occasioned by the introduction into the vagina of pointed or cutting obstetrical instruments are very rare in our day, for on the one hand their use has been much restrained, and on the other hand, they have been so perfected, that it can only be in the hands of the imprudent or unskillful that they can compromise the organs of the pelvis. [After a careful study of the application of the forceps and the results, we are firmly of the opinion that it is impossible for the blades of the forceps, when properly applied, to be made to touch the spot where the injury is always found, and therefore if the forceps ever caused a vesico-vaginal fistula it must have been by the force drawing the head strongly against the soft parts pressing upon a sharp edge of bone, and never by the direct action of the forceps themselves. The statistics upon this point gathered by Dr. Sims are also confirmatory of this opinion.] Another cause of fistulas is the rupture of the inferior portion of the uterus or of the vagina that takes place during labor, and may extend to the bladder; which is due to the narrowness of the pelvis, to the tardy dilatation of the external orifice, to the congenital deformities of the vagina, etc. The ulcerations and gangrene of

the vaginal walls, which are observed during the course of puerperal fevers are also a frequent cause of vesico-vaginal fistulas. The fall of the eschar produces the perforation. A long use of hard and slightly elastic pessaries, abscesses of various characters opening into the bladder and vagina, are also causes of fistula; in other cases they are due to a vesical calculus, to a splinter of bone proceeding from the fracture of some of the bones of the pelvis and piercing the parts situated before it, or indeed a violent cystitis, followed by suppuration of the vesical walls, bring on the perforation. We know a young lady, now aged 32 years, who has a urinary fistula of the vagina, which came on after a very severe attack of typhus fever when 24 years of age, to which a violent cystitis succeeded. Finally, a brutal and inappropriate application of a metallic catheter may also be the cause of a fistula. This is what lately happened in the neighborhood of Wurzburg, when a sage-femme, wishing to catheterize a woman in labor, violently pierced the urethra.

Symptoms.—The involuntary flowing of urine by the vulva is the most important symptom. In the large fistulas engaging the base of the bladder the trickling of urine is continuous, it takes place in all the positions assumed by the patient, but when the fistula is small or situated in the urethra, and when the vesical sphincter is still capable of voluntary contraction, it sometimes happens that the patient can retain her urine, at least at certain times and in certain positions. Unfortunately the condition favorable to the retention of urine is frequently absent, even in urethral fistulas, and this from two causes: either there is a permanent contraction of the vaginal canal arising from the vaginitis which has preceded and occasioned the fistula, and which draws the posterior wall of the vesical neck and prevents its occlusion; or the body and fundus of the bladder are in a permanent state of spasmodic contraction which disturbs the functions of the sphincter, their antagonist. Often the flow of urine, which ordinarily takes place drop by drop, is suddenly interrupted by a more considerable ejaculation of this liquid. This particularly occurs at each jarring or rapid moving of the body. When the urethra is not much contracted, when the solution of continuity is not too extended, and when the vesical walls are still capable of a certain dilata-

tion, so that the cavity can still contain a certain quantity of liquid, the discharge in spite of the incontinence, can still take place partly by the urethra. We have even observed several cases, where the fistula being very small, the major part of the urine was excreted by the urethra. Vesical and urethro-vaginal fistulas are almost always accompanied by an inflammation of the mucous membrane of the urinary passages. The urine is turbid, whitish, deposits a very abundant mucous sediment, and is very much disposed to become alkaline. The inferior part of the vagina, the external genital organs, the internal surface of the thighs being continually exposed to contact with this liquid, are in a permanent state of irritation, and become the seat of continual inflammation, [sometimes showing pustules resembling those produced by inunction with antimonial ointments.] The vagina and the exterior of the vulva are covered with false membranes in consequence of a croupy and excessively painful inflammation, while erythemata are developed upon the thighs, which renders all movement difficult. [The vagina is also very frequently covered with urinary concretions, sometimes almost calcareous, which add materially to the irritation.] The patient diffuses around her a very disagreeable odor and is a burden to herself and everybody about her. Hence, she soon falls a prey to melancholy, and renouncing all the pleasures of society, she isolates herself completely and is easily led to commit frequent errors of regimen, which joined to the moral depression, become the source of all sorts of evils. We will only cite chlorosis complicated with hysteria, pulmonary phthisis and marasmus, leading finally to a premature death.

Diagnosis.—When a considerable loss of substance exists, an explorer, of ever so little skill, cannot make a mistake, especially as the incontinence will already have made him suspect a solution of continuity in the bladder. Very small fistulas, however, easily elude the touch. To recognize them we are often obliged to have recourse to the speculum. For this exploration we recommend that the patient be always placed upon her elbows and knees, and that a speculum be employed which, while keeping the walls of the vagina apart, will bring into view the part corresponding to the bladder. The most proper

instruments for the purpose are the many valued speculums of Ségalas or Charrière, from which the valve, corresponding to the anterior part of the vagina, can be removed. A representation of them will be found on page 46. The speculum with movable limbs, represented upon page 47, may also be used. When the fistula is deeply seated, it may be rendered accessible to view by the depressors of Gerdy. To employ these instruments also necessitates the position upon the knees and elbows. The valve *a* is introduced into the vagina in such a manner that its convexity corresponds with the hollow of the sacrum. While an assistant elevates as much as possible by means of this valve the posterior wall of the vagina, and the perineum, and thus dilates the vulva backward, the surgeon applies the instruments *b* and *c* upon the lateral vaginal walls, and maintains them at a sufficient distance from one another to be able to examine conveniently the anterior surface of the vagina. [The Sims speculum (Fig. 9, page 49) has susperseded all speculums and depressors both for the diagnosis and treatment of these affections.]

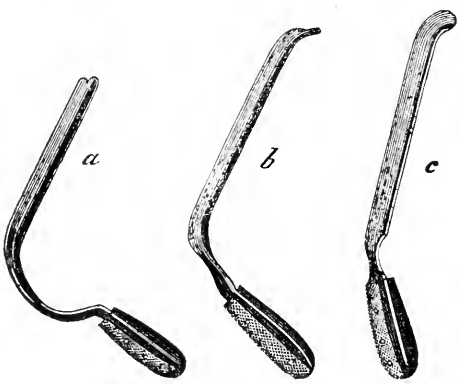


Fig. 50.—Gerdy's Depressors.

But even the inspection of the fistulous opening will not always give a very exact idea; it often happens that the borders, which are swollen and sometimes very relaxed, close in and easily make the solution of continuity appear much smaller than it really is. Hence it is prudent to introduce a metallic sound into the urethra, to press it against the vagina, and then to explore minutely with the finger the anterior wall of this organ.

Kiwisch, Mayer, Veit and others have indicated the following method of recognizing the existence and location of very small fistulas. We will say beforehand, that as yet we have never had to resort to it. The vagina is first tamponed with

lint or cotton, then a liquid of any color is injected into the bladder (Chinese ink); the tampon is colored at the place of the opening, and very well indicates the position of the fistula, which will render its subsequent discovery by the speculum much easier.

As to the state of the rest of the genital apparatus, it depends essentially upon the cause of the fistula. When this is formed in consequence of a puerperal inflammation of the vagina by the gangrene and consecutive perforation of the bladder, we often find the vaginal canal contracted through a variable extent by a nodular, hard and callous tissue, and as vaginitis of this nature is frequently complicated with analogous affections of the uterus and peritoneum, tumors and displacements of the uterus are not unfrequently the result. We will call special attention to the frequency of retroversions as complications of urinary fistulas. When the solution of continuity is due to a cancerous ulceration, we shall always find by exploration a very advanced infiltration of the inferior part of the womb and of the fundus of the vagina. These organs are ulcerated and partly mortified. Furthermore, it is not rare to observe very extensive fistulas which do not exert upon the rest of the reproductive apparatus any other bad influence than that which results from the permanent contact of the acrid and irritating urine.

Prognosis.—Setting aside all the inconveniences and sufferings of which urinary fistulas of the vagina are the source to the person affected, this infirmity increases in gravity from the fact that it is excessively rare that they are cured spontaneously. [We have seen three cases spontaneously cured; they were small, one perforating the cervix uteri, constituting utero-vesical fistula; she became pregnant twice subsequently. The pressure from pregnancy cured another.] Even the assistance of art, in spite of all the progress which surgery has made during recent times, very often remains without results. The meagre success of this operation is explained partly because, on the one hand, the continual oozing of the urine offers an obstacle to the union of the raw edges of the wound, and partly because when there is a considerable loss of substance the approaching of the lips of the opening demands a violent

tension of the neighboring parts, which in their turn exert, as well during the presence of the thread as after its removal, a continued eccentric traction, always tending to reopen the wound. When the border of this fistula was callous, and it was necessary to remove it if the cure did not take place, the consequence might be that the operation had done nothing but to enlarge the already existing opening. The condition of the rest of the vagina is also of great importance for the success of the operation. When cicatricial contractions of this canal exists, the small amount of elasticity possessed by the tissues surrounding the fistula scarcely allows us to expect a cure. It is unnecessary to say that considerable losses of substance will be less favorable than the fistulas of the size of a grain of millet to that of a pea, and that solutions of continuity of the urethra will generally permit a better prognosis than that of the bladder, as well because they are more accessible to instruments, as because the spontaneous occlusion of the sphincter or the introduction of a catheter will preserve the wound more easily from the contact of the urine. Finally it will be also necessary, with a view to the prognosis, to have regard to the state of the bladder; the hypertrophy of the walls of this organ, which is never absent if the disease is of long standing, opposes an obstacle to the dilatation of the fundus and base of the bladder, the permanent contraction of the longitudinal muscular fibres push the urine with violence against the base, and thus prevent the union of the lips of the wound. Hence the prognosis will be so much the less favorable in proportion as the disease is of longer standing, and as the capacity of the bladder is diminished. It will be very unfavorable when the mouths of the ureters open in the domain of the fistula, and by consequence, in that of the womb. We have no necessity to explain the complete incurability of the fistulas due to the ravages of cancer.

Treatment.—We do not intend to describe all the means proposed for the cure of urethro and vesico-vaginal fistulas. Their number is so considerable, and the success of most of them is so small and so well determined that we shall not be blamed if we regard only the fundamental procedures sanctioned by experience.

In the quite recent fistula, of small extent, and where the

borders are not yet covered with a membrane, we may at least try the procedure of Cederschjoeld to produce, if not a complete occlusion, at least a diminution of the solution of continuity. This surgeon made the observation that one of his patients, so long as she was seated, could perfectly retain her urine and discharge it at will. He profited by the peculiarity, and made the patient retain this position during the whole time that the edges of this wound were in suppuration; the cure was tardy, but complete. Although this simple means does not always succeed so brilliantly, and although, undoubtedly, this by itself will never cure old standing fistulas, still it deserves consideration when we have to treat a recent or old fistula, which, in certain positions of the body, allows little or no urine to pass. Combined with other means, this procedure may greatly favor the cure.

In the first place we will cite **tamponing the vagina** and retaining a catheter in the urethra to put an obstacle to the flow of urine from the vagina and to reestablish the natural course. The tampon has been applied in various ways. Sponges, either simple or covered with a fine cloth, have been employed; elastic bladders of caoutchouc, soft cylindrical pessaries, and bladders of animals filled with air after their introduction. To conduct the urine more surely by the catheter, Ségalas placed within it a mesh of cotton, to imbibe the fluid as it accumulated in the bladder. It is certain that in many cases this procedure may impede the dribbling of urine by the fistula, and so diminish the inconvenience of the patient; still, we are not able to attribute to it any great practical utility, for beside, that, it is certainly very rare that by this means we can obtain a complete cure, the dribbling by the fistula is almost never completely avoided by the sponge; imbibing then the liquid which is retained in the superior part of the vagina, only augments the irritation of this organ. When this is excoriated or inflamed, its already great sensibility will prevent the prolonged continuance of the tampon. Still, adding to all that the fact of this method can never arrive at the desired end except very slowly, that the patients are forced to keep their beds for months, and that finally, the result is very uncertain, it will be

comprehended why the tampon, in our day, is almost fallen into oblivion, and why it is used at the most, only in those cases where some other cause prevents the employment of other means, and when the vagina is so slightly sensitive as to support without too much inconvenience the presence of this foreign body.

Cauterization has been applied in various ways. Monteggia and Dupuytren used the actual cautery; Dieffenbach the tincture of cantharides; Lallemand, Jobert, Plamant, Czekierski, the nitrate of silver and the potassa cum calce; Ermann the water of Belloste,[1] etc. Others (Czekierski, Tillefer, Leroy d'Etiolles) preceded the cauterization by the scarification of the borders of fistula. While some apply the caustic to the edges only of the wound, others (Chelius) advised to cauterize deeply all the neighborhood of the wound to as great an extent as possible. Cauterization will never cure where there is any considerable loss of substance; but it may be useful in cases where we have to do only with small fistulas, it especially deserves to be employed when after suture only a minute opening remains. In these circumstances the crayon of the nitrate of silver or the tincture of cantharides will often suffice, and it is only when these two methods are insufficient that we advise recourse to the actual cautery. To cauterize, we place the patient in the quadrupedal position; then by means of a many valved speculum or the depressors above described [or still better, by Sims' elevator] we attempt as much as possible to bring the opening into view. A metallic sound placed in the urethra, and pushing the fistula into the vaginal canal, will for this purpose render good service. After this, by means of a brush, we apply the tincture of cantharides upon the borders of the opening to an extent of nearly three-fourths of an inch square, or we cauterize with the solid nitrate of silver as deeply as possible. We once obtained by the tincture of cantharides a complete cure of a fistula of the neck of the bladder as large as a pea. For the application of red-hot iron, we should choose canteries about eight inches long, light, terminating in a rounded button

[1] A liquid containing principally the acid nitrate of mercury. See R. Phillipeaux, Pratique Traité de Cauterisation. Paris, 1856, p. 1.

incisions proposed by the French surgeons, not only are of little utility, but are not without danger, and he invented a procedure which, while attaining the same end as the incision of Jobert, did so more surely and with more adroitness. Simon applies in fistulas of a certain size two rows of sutures, of which one is further removed than the other from the lips of the wound. The farthest or exterior row, which he calls **the suture of detention,** has no other end than to draw toward the borders of the wound, the neighboring tissues, and that sufficiently to make all tension cease in the lips of the wound; while the second or internal row is the **suture of reunion,** and being situated nearer the borders of the wound, maintains them after the freshening exactly in apposition. Seeing the mobility of the uterus from back forward, and of the vesical neck from before backward, the external row may make a considerable loss of substance disappear. It is formed of two or three points of suture made with double silk or small ribbons. The size of the fistula and the degree of distention will determine the number of points and their distance from the edges of the wound. Before tying the end of the external row, the threads of the interior row of sutures are first placed. They ought to pass to a distance of from one to two lines from each of the borders of the carefully freshened wound. The internal row will be composed also of two or three points of simple suture of plain silk. The points of the two rows ought to alternate in such a manner that those of the exterior suture when tied will not cover the threads of the suture of reunion, but will pass between them. For by this means the threads of the external suture, even when they may deeply cut the tissues, will not join with those of the internal row in such a manner as to pierce the vesical wall by a common opening. After having placed the threads of the interior row, we tie first the sutures of detention to draw the neighboring tissues toward the fistula, in such a manner that the borders of the wound touch each other, then the interior row of threads is tied, which finishes the complete occlusion of the solution of continuity. In the double suture, it is not till the fifth to the seventh day that the threads of the exterior row have sufficiently torn the tissues to relax them entirely. At this time the union

of the lips of the fistula ought to have already taken place.

For more ample accounts as to the details of this operatory procedure, we refer the reader to the monograph published by Simon.[1] We will only add that in the two cases operated upon by us after this procedure, we have been able to recognize that the double suture of Simon is perfectly sufficient to make the tension of the tissues disappear in small fistulas, which in extent do not exceed the size of half a dollar. But we think with this surgeon that for the fistulas of large extent, some of the incisions of Jobert would be necessary; furthermore, we should state that, according to our observations, the procedure of Simon has often been attended with entire success, and leaves far behind it, by its certainty and simplicity, all those which have been hitherto proposed. It is much preferable to the quilled suture of Barchard and Betschler, and the glover's suture recommended by Colombat (d'Isèri) and, to the method called anaplastic practised by Wurtzer, Roux, Velpeau and others, which consists in covering the loss of substance by a flap borrowed from the neighboring mucous membrane.

The instruments formed in a hook or crochet shape, proposed by many surgeons, as Naegele, Lallemand, Laugier, Spezel, Coglioso, etc., are for the most part very complicated in construction. They had for their object the maintenance of the borders of the fistula a long time in contact; but with good reason they are not employed in our day. It will not be easy to decide, especially with a young woman, to perform cystoplastie or erythroplastie as proposed and executed by Vidal de Cassis, Dieffenbach and others. This latter operation consists in producing the complete obliteration of the portion of the vagina situated below the fistula, either by suture or by repeated cauterizations.

Experience has demonstrated that the various recipients and reservoirs of urine proposed for the incurable cases, in no way fulfill the object desired. The simple and best method of relieving the patient is to cause her to wear constantly at the entrance of the vagina, a sponge fixed by a T bandage, and to enjoin the most scrupulous attention to cleanliness.

[1] Ueber die Heilung der Blasenscheidenfisteln. Giessen, 1854.

[In the foregoing dissertation upon urinary fistulas, the author evidently shows that in his opinion (and he represents German if not European knowledge) there is little hope for the poor woman suffering from a severe form of this disease; and the statistics of European surgery—little reliable as some of them are—support this view. We say "little reliable," for many of these surgeons claim success where it does not exist. The operations of these great surgeons are public, the **results** private. Dr. Mott stated in public (Report of First Anniversary of the N. Y. Woman's Hospital, 1856): "I was present when eight cases were operated upon—seven by Jobert and one by Roux, two of the most distinguished surgeons in Europe—**and all of them failed.**" In behalf, therefore, of American surgery, and in behalf of humanity, we are happy to record here—with a pride which not even the dignity of a serious scientific treatise like this can repress—the glorious achievements of Dr. J. Marion Sims, which have produced such a change in this operation, that success is now the rule and not the exception; for where a sufficient amount of tissue is left that the part may be brought together, union and cure are the invariable results.

Dr. Sims has kindly furnished us with the following statement of the results of his operations up to December, 1860:

"Of two hundred and sixty-one cases of vaginal fistula (vesical and rectal), two hundred and sixteen have been permanently cured by the silver wire suture; thirty-six are curable and nine incurable.

"Every case is curable where the operation is practicable, provided there is no constitutional vice to interfere with the powers of union.

"Success is the rule—failure the exception."

These results form a marked contrast to those of the European operations, and will be a justification, if any were necessary, for introducing in this place an extended description of the details of this operation.

Different writers have variously classified these fistulas; but their relative position has generally served as the basis for classification, and the following will be found sufficiently comprehensive: First, the urethro-vesico-vaginal fistula, involving

the urethra; second, those fistulas situated at the neck of the bladder, involving the trigonus vesicalis; third, those of the bas fond or base of the bladder; fourth, the utero-vesical, where the cervix uteri forms one boundary of the fistulous opening.

To obtain a proper view of the fistula, position is a matter of some importance. "Place[1] the patient upon a table two and a half by four feet, on her knees, with the nates elevated and the head and shoulders depressed. The knees must be separated some six or eight inches, the thighs at about right angles with the table, and the clothing thoroughly loose, so that there shall be no compression of the abdominal parietes. An assistant on each side lays a hand in the fold between the glutei muscles and the thigh, the ends of the fingers extending quite to the labia majora, and, by simultaneously pulling the nates upward and outward, the os externum opens, the pelvic and abdominal viscera all gravitate toward the epigastric region, the atmosphere enters the vagina, and there pressing by its normal force, soon stretches this canal to its utmost limits, affording an easy view of the os tincæ, fistula, etc."

To facilitate the exhibition of the parts, the Sims speculum (Fig. 9) is introduced into the vagina, and held by the assistant on the right. This method of exploration is not only useful in these cases, but in the most painful organic diseases, such as carcinoma, corroding ulcer, etc., which may be thus inspected without inflicting the least pain or inducing the slightest hæmorrhage. It was discovered by Dr. Sims in 1845, and was used in all operations for vesico-vaginal fistula until 1855, when, about the time the N. Y. Woman's Hospital was opened, he hit up the expedient of using his peculiar speculum (see page 49) with the patient on the side, which is the position now generally adopted in all these operations; though occasions sometimes present themselves that absolutely necessitate the one first described. In this connection we will quote Dr. Sims' own description of this new position.[2] "A few require to be placed on the knees, with the head and thorax depressed; but in the great majority of cases the patient may lie on the left

[1] On the Treatment of Vesico-vaginal Fistulas. By J. M. Sims, M.D. American Journal of Medical Sciences, 1852, p. 64.

[2] Silver Sutures in Surgery. New York, 1858.

side, while the operation will be executed with equal facility to the surgeon, and, of course, with more ease to the patient.

"In this position, the thighs are to be flexed at about right angles with the pelvis, the right a little more than the left. The left arm is thrown behind, and the chest rotated forward, bringing the sternum quite closely in contact with the table, while the spine is fully extended, with the head resting on the left parietal bone.

"The patient being thus rolled over as much as possible on the front, the assistant standing at her back, elevates with the left hand the right side of the nates, while the right holds the speculum which draws up the perineum, allowing the pressure of the atmosphere to dilate the vagina so as to bring every part of it into view. This position permits the use of anæsthetics if desired."

The operation for vesico-vaginal fistula may be divided into three stages; first, scarification of the edges of the fistula; second, introduction of the sutures; third, closure of the fistula and application of the catheter. The instruments absolutely necessary for this, besides the speculum, are a small tenaculum, scissors, bistoury, needle and forceps, blunt hook, silver wire, and half a dozen sponge probangs.

The success of the operation depends upon two conditions; first, free scarification; second, the use of a metallic wire suture. The tenaculum is very small, the curve is about one-third of an inch long, and at right angles with the shaft, which is six inches long. The edge of the fistula is elevated with the tenaculum, and freely removed, either with the knife or the scissors, in strips, sometimes an inch or two long and at least one-third of an inch wide. This scarification is to be made freely upon the vaginal surface, avoiding in all instances the wounding of the lining membrane of the bladder. Where the fistula is very small, it will be often sufficient to transfix the vesical septum and remove by one cut the entire circumference of the fistulous opening. During the process of scarification the assistants will use the sponge probang as occasion requires. Young surgeons often make the mistake of not removing a sufficiency of tissue in the process of scarification.

To illustrate the **method of suture,** let us suppose a case

where the fistula is oval, transverse, occupying the *bas fond* of the bladder, about half way between the urethra and the os tincæ, in the mesial line, and large enough to admit the end of the index finger. This in shape, size and position, is altogether the most favorable that can occur, both for the easy performance of the operation and for the certainty of success. Such a fistula will require not less than four sutures, as they must be placed about three-sixteenths of an inch apart.

To introduce the suture, fix the edge of the fistula with the tenaculum (one sometimes used for this purpose is represented in Fig. 59), enter the needle armed either with a silk thread (or with the wire itself) about half an inch anterior to the scari-

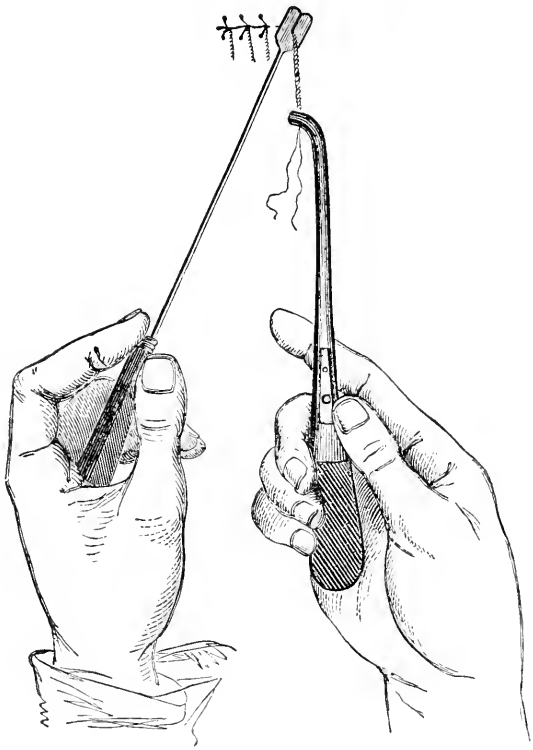


Fig. 53.

fied edge of the fistula, push it deeply into the vesical septum without transfixing it, and pass it out just at the edge of the mucous lining of the bladder. It should be especially remem-

bered that the suture should not come too close to the edges of the wound, and that the neglect of this precaution is among the most frequent causes of the non-success of this operation in the hands of the inexperienced surgeon, from the subsequent tearing out of the stitches. An idea of this can be obtained by the annexed cut, Fig. 54.

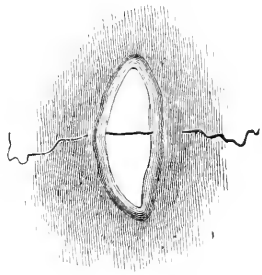


Fig. 54.

Grasp the needle then with the forceps, and pull the thread through, letting it run over the end of a blunt hook or fulcrum for the purpose; next fix the opposite edge of the fistula with the tenaculum, and enter the needle at the junction of the cut surface with the mucous membrane of the bladder, passing it deeply through the vaginal wall, and bringing it out at a point on the surface beyond the fistula, corresponding with its point of entrance on the anterior side. After the requisite number of threads have been introduced, a piece of wire, twelve or eighteen inches long, is bent at one end, so as to fasten it securely to the loop of the ligature, which is pulled through till the thread is replaced by the wire. No fistula can be small enough to require less than two sutures; while some may need twelve or thirteen. The wires should be tied separately by twisting the two ends of each together, and should then be cut off, leaving the twisted ends at least

Fig. 55.

half an inch long to facilitate their removal. Fig. 53 shows the method of twisting the wire. Three sutures are represented as secured and cut off, with the twisted ends bent flatly down on the surface, while the fourth is undergoing the process of torsion. The fulcrum of support is held firmly in the left hand, while a pair of forceps in the right makes steady traction on the wire, when, by a rotary movement of the forceps, it is quickly and evenly twisted, thus locking firmly together the edges already coapted. The operation being over, the catheter is applied and the patient is placed in bed. The bowels should

be constipated for ten or fifteen days, which may be facilitated by an appropriate dose of some form of opium, night and morning. The diet should be light and nutritious. The catheter should be removed once or twice in twenty-four hours to keep it clear of mucus and concretions. The patient may lie on the back or on either side, changing position as she pleases, but should not be allowed to rise up in bed. The patient's comfort is greatly promoted by washing the vulval opening twice a day, or oftener, with warm or cold water, as may be preferred. For this purpose a common bed-pan is placed under the nates, as she lies on the back; when the water may be thrown into the os externum, over the mons veneris, vulva, and inguinal

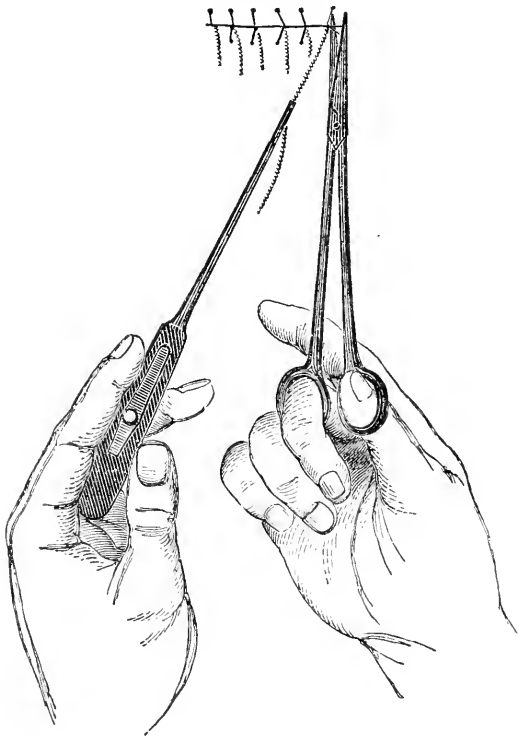


Fig. 56.

regions, by means of a syringe holding some six or eight ounces. The water has sometimes to be thrown with considerable force to remove the urinary deposits from the nates and genitals.

The sutures may be allowed to remain nine or ten days. To remove them, seize the twisted ends of the wire with a long, delicate pair of forceps, pull it gently up till the loop, which was buried in the tissue, becomes visible, slip the blade of a sharp-pointed pair of scissors within it, and clip the wire (Fig. 56), which is then easily removed. Some care is needed to cut the wire in the loop instead of cutting the twisted portion. Dr. Sims is of the opinion that the simple interrupted wire suture, properly applied, is alone sufficient to insure the result, and that all addenda in the shape of clumps, buttons, etc., are entirely superfluous, and in many cases, injurious. He formerly used a wire (Nos. 28 and 29), but now prefers a larger size (say Nos. 26 and 27.) Fig. 57 represents the needle and forceps. The needle is straight, and about seven-eighths of an inch long, with a gentle curve at the point.

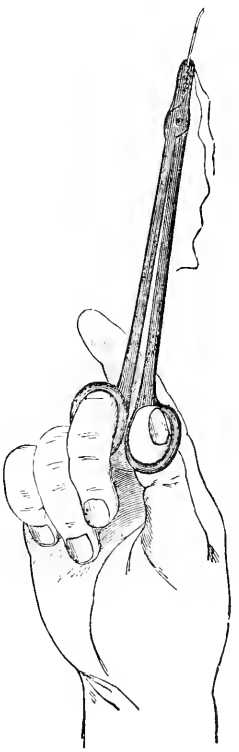


Fig. 57.

The catheter (Fig. 55.) may be made of silver or of malleable white metal. It is self-retaining; the vesical extremity being curved up behind the symphysis pubis, while its outer end is bent in an opposite direction, giving it a sigmoid curve.

For a full understanding of the great advance which has been made in the treatment of these diseases we must wait for the lucidly illustrated work now in preparation by Dr. Sims; but observation of many of the cases treated by him enables us to make some statements showing how much advance has been made in the remedial treatment of these awful calamities. Certain cases have existed where not only both vesico- and recto-vaginal fistulas have been formed, but there has been a slough of the entire contents of the pelvis and the whole base of the bladder has been destroyed, leaving the ureters exposed to view, the anterior face of the rectum absent, and even the original vagina want-

ing. In these cases we have seen the bladder most ingeniously renewed by one operation; the rectum restored by another. Sometimes the vagina has been closed up, thus converting it into a bladder. In the first of these cases the uterus, being closed within it, and in a woman in the prime of life, it was a query what would become of the menstrual fluid. Time settled this important question. This was secreted normally, emptied into the bladder, and discharged per urethram. Many years and repeated cases have evinced the possibility and advisability of this plan of procedure. Of course when this operation has been performed, subsequent impregnation is impossible, unless coition be effected, as described (page 78), through a dilated urethra. Whether this will ever be effected we cannot say, but should it so be, a new chapter will be requisite in future obstetrical works.

Various less tried methods of operating have been proposed, among which are modifications of the above operation by Dr. Bozeman, of Alabama. Dr. Sims originally used a clamp and fastened the wire suture by perforated shots. Dr. Bozeman modified the clamps by making them of a button shape. Dr. McLellen, of Philadelphia, also modified this portion of the apparatus, and used a button with silk sutures, which pulled out speedily. Experience has thus shown that the main features of the operation of Dr. Sims are the method of exploration, and the metallic suture—he uses silver in preference, although he used iron in 1853, and all the baser metals about the same time.

Prof. Bronson, of the N. Y. Medical College, has perfected another operation in which he has had considerable success, and which he thus describes:[1]

"Preparation of the border of the opening being the first thing requisite, I deem a vertical excision as usually practised, not as conducive to success as if the border was cut to a bevel taking more tissue from the vaginal wall, thus producing a more extensive vivified surface, without really enlarging the opening. I consider other advantages to attend this manner of operating as it involves a principle heretofore overlooked or unmentioned.

"When the bladder is collapsed, the opposing surfaces, by every motion of the body or its larger members, are chafing the

[1] Am. Med. Monthly, N. Y., 1860.

one against the other, and thus forcing the fluid it is constantly receiving into its cavity into any fissure or crevice, which in a state of rest would be wholly impervious.

"A familiar illustration of my meaning is seen in a fine-meshed sieve, which will hold a considerable quantity of water if undisturbed, but if chafed, even but slightly, by the palm of the hand for instance, the water is forced through rapidly and completely.

"By bevelling the border of the aperture, when the sides are brought into apposition the vesical edge is in closer contact than the vaginal, and a slight prominence is formed on the vesical side, which counteracts, in part, the influence exerted by the collapse of the organ. Another fact having an important bearing on this operation I have failed to find heretofore considered. I mean the difference of structure between the vaginal and vesical tissues. The strong muscular structure of the bladder greatly preponderates over the weak muscular tissue of the vagina. There is a difference not only in power, but also in function. The muscularity of the vagina is only active under sexual excitement; whereas, the muscular action of the vesica is stimulated by the presence of anything in its cavity. This difference presents an indication which is met in great part by this method of denudation.

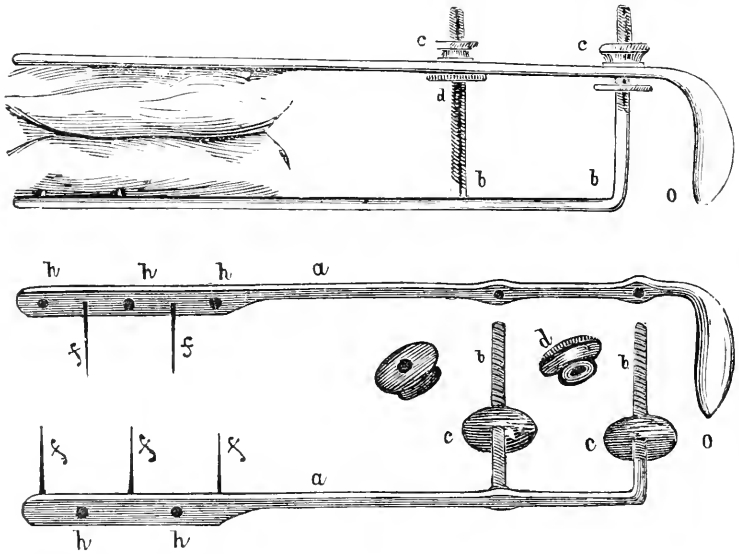
"Coaptation and maintenance of the lips of the wound in contact, with the exact amount of pressure, is the next subject for consideration.

"Rest is a fundamental law of cure, and the more completely it is effected the more successful will be the result after operations upon the vesico-vaginal septum. To overcome direct opposing traction upon the lips of the wound is not all that is sufficient. A sliding of the lips upon one another must be also prevented.

"To meet these indications, I have devised an instrument which combines the power of preserving perfect rest to the parts implicated, in overcoming both direct and oblique traction, and the advantage of being readily graduated in its pressure, external to the vulva.

"Method of Operating.—First delineating with a sharp-pointed bistoury the extent to which denudation is desired, I proceed to dissect a continuous strip from the vaginal

border of the opening, three-eighths of an inch wide, leaving the vesical tissue barely encroached upon at its extreme edge. This step is readily perfected with bistoury and scissors. All is now ready for the application of the instrument, which is done by inserting the teeth one-half of an inch from the edge of the denuded surface, and passing them



F.g. 58.

a, *a*, Arms of the instrument.

b, *b*, Pillars threaded to carry the nuts.

c, *c*, and *d*, *d*, Which serve to confine the arms in their proper relation, and graduate the pressure.

f, *f*, *f*, *f*, *f*, Teeth, acting the parts of sutures. Opposite each is a hole, marked *h*, to receive the points of the teeth, in case it is necessary to bring the arms nearer to each other than the teeth would otherwise allow.

O, Flange, or process by which the arm to which it is attached can more readily be handled. The pillars, *b*, *b*, serving the same purpose in the application of the opposite arm.

The instrument is made of steel, and may be electroplated or not, as may be deemed desirable. By use it becomes protoxydized, in which state it remains without further corrosion. It is made by Tiencken, 749 Broadway.

between the vaginal and vesical membranes, and bringing them out at points in the denuded surface one-eighth of an inch from the vesical border. The two parts of the instrument are then to be approximated, and the lips of the wound brought into

close contact, and there retained by means of the thumb-screws, perfectly closing the aperture. The instrument by slight modification can be adapted to transverse as well as vertical perforations."

To facilitate the necessary manipulations of these operations, Prof. Campbell has prepared an instrument to approximate the two edges of the wound together. Transfixing each edge of the fistula by either hook of the instrument (Fig. 59,) by means of the sliding button in the stem, they may be approximated together or the instrument may be used as a simple tenaculum.]

Fig. 59.—Professor Campbell's hook forceps.

§ 2. *Entero-Vaginal Fistulas.*

Etiology.—Authors relate some facts which prove that the fundus of the vagina, in consequence of traumatic lesions or ulcerous perforations, may enter into communication with one of the parts of the neighboring intestine. But we will not stop at this variety of fistula, because, on one side they generally provoke from the commencement such grave symptoms, that the local affection has but a secondary importance, and on the other side even when they are compatible with life, we do not know any procedure which can be brought against them with any hope of success. We leave then their description to treatises on surgery, and we will only occupy ourselves here with the fistulas which establish an abnormal communication between the inferior extremity of the vagina, and the corresponding part of the rectum.

Recto-vaginal fistulas are most frequently the consequence of lesions which the posterior wall of the vagina undergoes during labor, either by a violent distention exerted by the head of the fœtus, or by the imprudent employment of obstetrical instruments, or finally in consequence of the tearing of the vaginal and rectal walls by a splinter of the cranial bone in the course of craniotomy, or after the employ-

ment of the cephalotribe. Fistulas of this kind are often complicated with ruptures of the perineum, the latter may also extend to the sphincter of the anus, and then after the cure there remains above this muscle an opening of a variable size, or the more resisting sphincter remains entire, and the inferior extremity of the vagina and rectum is torn at the same time as the perineum. Sometimes the fistula is not formed until after the accouchement, and results from ulceration of the posterior wall of the vagina, which finally becomes perforated; or it is a consequence of an exudation into the recto-vaginal cavity terminating by suppuration and mortification opening a passage through the vaginal and rectal walls. We have once seen this fistula produced in the following manner. A vaginal rectocele existed; the hardened fecal matters in the sac formed by the rectum kept up a permanent state of irritation, and provoked a periproctitis which terminated by perforation of the sac.

It is in an analogous manner that pessaries which are too hard dilate and too strongly compress the vagina, and by this means establish a communication between this organ and the rectum by ulcerating these parts. We have already said that recto-vaginal fistula often constitutes a very troublesome complication for the patient, in the latter periods of cancer of the uterus and vagina, and that in certain forms of cloacæ, a communication may also exist between the vagina and the rectum.

Diagnosis.—Ordinarily it is the patient who draws the attention of the physician to the existence of this infirmity. She complains of the involuntary escape through the vagina of half liquid fecal matters and intestinal gas. When this anomaly has existed long, it is generally accompanied by painful inflammation of the mucous membrane of the vagina, erythemata and excoriations of the external genitalia. When the fistula has some extent, the finger carried into the vagina or rectum recognizes it without difficulty, but when it is very small, of the size of a grain of millet to that of a lentil, the diagnosis cannot be established without the aid of inspection, the more as then the fecal matters do not pass into the vagina, and the gas only takes this abnormal way. In these cases we separate the lateral walls of the vulva to the vagina by means of the depressors above indicated; we place the index finger

of one hand in the rectum, and we seek for it by making pressure on the wall anteriorly, as well as on the corresponding part of the vagina, and pushing them as far forward and as low down as possible. This manœuvre brings the opening of the fistula into view, if it is found in the inferior third of the vagina, which is most frequently the case. When the fistula is seated higher up, we employ for the exploration a many-valved speculum transversely distending the vagina and permitting the exposure of the posterior part.

Prognosis.—Fistulas of the rectum are in general less to be feared than those of the bladder. Cases of spontaneous cure are not very rare. And when we are forced to resort to an operation, the success is more probable than in that for urinary fistulas. Still, unfortunately, it sometimes, and quite too frequently, happens that the recto-vaginal fistulas, when large and extending very high up, resist all the efforts of the surgeon.

Treatment.—When we have to treat a recent recto-vaginal fistula, it is above all necessary to administer some preparation of opium, in order to attempt to obtain during several days a retention of the fecal matters; then we carefully wash the rectum and vagina with the aid of injections of tepid water. If the fistula does not exceed the size of a pea, repose in bed and the repeated application of injections will often suffice for a cure. At the end of from eight to ten days the opening will at least be notably diminished, and its complete occlusion will be rendered more easy. In our day two methods only are still employed, cauterization and suture. We recommend the first in all cases where the fistula does not exceed the size of a dime and where its borders are not very callous; still it is proper not to be satisfied with cauterizing one side only, but alternately once by the rectum and once by the vagina. We have up to the present treated five recto-vaginal fistulas; one of them nearly of the size of a quarter of a dollar, and situated very high up, resisted all our efforts. We cured three by cauterization and the last by suture. We have always employed the solid nitrate of silver; once only, for a fistula of the size of a dime, and which had existed more than six years, we had recourse to the red-hot iron, after having many times failed with the nitrate. Two applications of the actual cautery by the vagina reduced

the fistula to the size of a lentil; afterward the nitrate finished the cure. The fistula which we cured with the suture was formed in the course of a puerperal periproctitis. It had lasted for three years, and was sufficiently large to permit the index finger carried into the rectum to pass easily into the vagina. Furthermore, the solution of continuity was found immediately above the sphincter; its position was then sufficiently favorable for the operation. The patient was placed as for stone, an assistant dilated the vulva with Gerdy's depressors, while the index finger of the left hand introduced into the vagina pushed the opening of the fistula as much as possible forward and downward; by means of a long narrow scissors, we cut off the callous border around the whole circumference of the opening. Then we placed at a distance of three or four lines from the lips of the wound three points of suture; and to diminish the tension, after the procedure of Simon for urinary fistulas, we passed three other threads which traversed the wall at half an inch behind the former, passed into the rectum, retraversed the opposite wall at the same distance behind the first points of the suture and were tied in the vagina. It is to the application of this double suture that we attribute in great part the complete occlusion of the fistula immediately after this first operation. Hence we cannot too highly commend this procedure; we think that it will attain the end more surely and more quickly than the simple interrupted suture, the glover's suture, or the compressors of Nélaton and Cullerier, which are no longer used in our days. It will only be when there is a considerable loss of substance, rendering probable a too great tension, and the tearing out of the threads, that it will be necessary to prefer to the double suture the transferrence of a flap of mucous membrane borrowed from the neighboring parts. [The silver suture is here, as before stated respecting vesico-vaginal fistula, the only reliable means of cure. With it success may be predicted.]

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Art. V.—Inflammations of the Vagina.

§ 1. *Catarrh of the Vaginal Mucous Membrane.*

Here, as for the uterus, we distinguish an acute and a chronic form.

The vaginal catarrh is characterized by a bright red coloration of the mucous membrane, its papillæ forming little spots of deeper color and clearly defined; the mucous membrane appears tumefied and friable, its epithelium is easily removed, and has a tendency to bleed upon the least touch, and especially upon the application of the speculum. Hyperæmia soon gives rise to an augmentation of secretion, which ordinarily does not appear until the second or third day of the disease. In certain cases there is a tumefaction of the papillæ appreciable to the touch. They project upon the surface of the mucous membrane in the form of little prominences of the size of a grain of millet to that of a small pea. Formerly they were wrongly taken for tumefied mucous follicles. The investigations of Mandl and Kölliker, who have demonstrated that the vaginal mucous membrane contains but very few follicles, have entirely refuted this opinion, so that the particular form of inflammation established by Deville, under the name of

granular vaginitis, and which should be characterized by the presence of these prominences, has lost the importance attributed to it by this author. The acute catarrh extends throughout the mucous membrane, or it is limited to certain parts of the vagina. It is especially at the entrance of the vagina that these partial inflammations are met with. They then ordinarily combine with an analogous affection of the urethral mucous membrane, and that of the neighboring organs. The catarrh, which remains limited to the fundus of the vagina, ordinarily accompanies or provokes the inflammations of the uterine mucous membrane in spreading from the vagina to the cavity of the neck.

Chronic catarrh is the consequence of the acute catarrh, or is insensibly developed without being preceded by acute inflammatory symptoms. The mucous membrane appears relaxed and, so to speak, polished, its numerous folds have disappeared, and the walls of the vagina yield, and easily dilate, especially at the fundus of this organ. By speculum exploration, it is perceived that the normal rose color has disappeared, the mucous membrane is livid, excoriated here and there by the loss of epithelium; sometimes it bleeds at the slightest touch. This form of catarrh is quite often accompanied by hypertrophy of the papillæ of which we have spoken. It is especially upon the anterior wall that the finger distinctly perceives them by the touch. The relaxation of the vagina arising from this affection, often gives rise to fallings and even to partial prolapsus, especially of the anterior wall.

In acute catarrh the patients are often tormented with an excessively painful feeling of heat and constriction, and a very disagreeable pruritus, rectal and vesical tenesmus, symptoms to which those of acute catarrh of the uterus are united; in the chronic form, it is particularly the hypersecretion of the mucous membrane which inconveniences the patient. We think that a short résumé of the researches which we have made, in concert with Prof. Kölliker, upon the matters secreted by the vaginal mucous membrane will not be without interest to the reader.

When this membrane is in a perfectly normal state, as it is scarcely ever met with except in women who have never had

children, and who have not abused coitus, the quantity of liquid secreted is little abundant; there is only that which is necessary to maintain the surface of the mucous membrane humid and smooth. By speculum exploration, this moisture appears in the form of an almost limpid mucus, very liquid, covering the vaginal walls; here and there a more viscous liquid, whitish or yellowish, is perceived. When the border of a spatula is passed over the mucous membrane, it is moistened without its surface being covered with a thick layer of mucus. A bit of paper dipped in the tincture of litmus, and placed in contact with the mucous membrane by means of a dressing forceps, is ordinarily speedily colored red, and thus indicates the acidity of the vaginal mucus. With some women that we have examined, this reaction remains doubtful; but we have never yet met with an alkaline reaction. The microscopic examination does not disclose any remarkable histological element, aside from a quantity, ordinarily quite inconsiderable, of cells of pavement epithelium.

A little before and after menstruation, the properties of the mucus are modified. First, at this epoch its quantity is more considerable; sometimes by the introduction of the speculum, it is seen to run into the interior of the speculum. Before the appearance of the menstrual hæmorrhage, it is almost always clear as water and very liquid, while, during the two or three first days after the courses, in most cases, it is of a reddish yellow, while remaining at the same time very liquid and very transparent. The acidity is almost always very well marked; the microscope discovers, besides a great number of epithelial cells, a sometimes very considerable quantity of blood globules, part in the normal state, and part already more or less changed.

In the hypersecretion due to catarrhal inflammations of the mucous membrane, the mucus accumulated principally in the fundus of the vagina is either white, liquid, like milk, or much thicker and yellowish, like cream or pus. It has especially the latter qualities when the lividity, the deep color of the vaginal walls, lead to the conclusion that there is an elevated degree of hyperæmia. The reaction of these two sorts of mucus is always acid. Our researches show us positively that the quantity of organized elements which the mucus contains, increases with

the consistency and the yellowish color of the liquid. The thicker it is, the more opaque, like to cream or even pus, the greater is the quantity of the cells of pavement epithelium, pus or mucus globules which are there met with. It is not rare either to find a considerable number of infusoria, known by the name of trichomonata, some filamenta algæ and some vibriones. The form of the trichomonata of the pure vaginal mucus is always elongated, oval and the shape of a pear or biscuit. Their color is very variable, their greater diameter is from six lines to an inch and four lines; one of their extremities possesses sometimes one, sometimes two, sometimes three vibratile cilia from one to two inches long, at the base of which are found one or many filaments ordinarily quite short. The other extremity of the body is elongated, with the most of these animacules, into a quite thick expansion, although very transparent still and immovable, the length of which is about the same as that of the body. We have never seen the buccal opening; still in certain cases we have thought we perceived, at the extremity which bears the cilia, a little oblique crevice; the contents are granular, colorless, and to all appearance without the formation of nucleoli, without contracted space, and when the animal is fresh without vacuoli. The movements are very slow so long as the mucus is mixed with water; the animalculæ themselves swell when in contact with water, become spherical and fill with vacuoli; the movements of the cilia and the filaments exist still some time; still they are without vigor and cannot displace the animal; finally, they in a short time entirely cease. In examining them, on the contrary, in pure mucus, we are astonished at the mobility and vivacity of these animalculæ; it is a continual agitation the same as that evinced by the ordinary infusoria, so there can be no doubt of their animal and independent nature.

It was in pregnant women that we first found the trichomonata; afterward we observed them in more than half the women that we have examined, whether they were pregnant or not, whether the flow was benign or virulent, in such a manner that we do not think that a peculiar relation exists between this parasite and the gonorrhœal affections of the vaginal mucus. Still we must acknowledge that the trichomonata

are never met with in entirely normal mucus, which contains no epithelial cells and no mucus or purulent globules. We have found them most frequently in a yellow, puriform, very acid mucus, very rich in globules of pus, and containing also an abundance of cryptogamica. We think it may be advanced that the presence of trichomonata is connected with a certain alteration of the product of the vaginal secretion, and that it does not develop much except in a mucus whose pathological nature is incontestable.

In regard to parasites, we have still observed, aside from trichomonata some few vibriones, and a vegetable formed of very fine, stiff, long filaments, three and a half to four and a half inches long, and which, aside from a very considerable thickness is perfectly identical with the algæ of the mouth, the **leptothorix buccalis** of Ch. Robin,[1] only it was always isolated, and was never in communication with a base or a granular pedicle, and never was seen implanted upon epithelial cells. The mass of these filaments is sometimes considerable ; we have never met them except when mucus globules existed at the same time ; still they are generally more rare than the trichomonata.

If we have dwelt some time upon the description of the properties of the vaginal mucus, it is because we think that the knowledge of its properties is not without some utility for the differential diagnosis of the vaginal discharges. A proof that when the distinctions which we have indicated are not regarded, the distinction of uterine and vaginal leucorrhœa is not always easy, is, that experienced observers have allowed themselves to be led into the declaration that the catarrhal hypersecretion of the vagina is an affection comparatively rare, and that the smallest number of leucorrhœas have their source in the vagina. But, regarding the properties of the vaginal mucus which we have described and which are perfectly characterized, one may soon convince himself that the hypersecretion of the vagina is one of the most frequent diseases of the genital organs of women.

[1] Natural History of the Vegetable Parasites which grow upon Man and Animals. Paris, 1833, p. 345.

Etiology.—The vaginal catarrh is primitive, that is to say, independent of pathological conditions, or it is the effect of various affections as well general as local. In the first case, we may ordinarily recognize as the cause, a local irritation acting directly upon the mucous membrane. This we often encounter, in consequence of abuse, or a too frequent or impetuous gratification of the venereal appetite with newly married women or public prostitutes. It is not rare that the action of the blenorrhagic virus may be the cause of acute catarrh. Relying upon this observation, many authors have admitted a special form of blenorrhagic catarrh, which however is not distinguishable from the catarrhs due to other causes, except that the product of the secretion, placed in contact with other mucous membranes, excites a like affection. The other symptoms of blenorrhagic catarrh present nothing peculiar, and as the contagiousness of the disease is rarely determined, it will only be with the greatest reserve that vaginal blenorrhagia will be diagnosticated. Like the other mucous membranes, that of the vagina is easily congested, and inflamed under the influence of cold; hence we need not be astonished to see the disease now under consideration declared in consequence of a chilling of the whole body or some of its parts, and particularly after the action of a humid cold upon the feet. The influence of certain diseases of other genital organs is also important. The catarrh of the vagina very often accompanies acute or chronic metritis, the displacements of the uterus and the neoplasmata of this organ. It is the same with the inflammatory affections and tumors of the ovaries. The venous stasis of the pelvic organs, and in particular of the rectum and the bladder, also often cause a chronic vaginitis.

Among the constitutional diseases which may be cause of the vaginal catarrh, we will cite chlorosis. It is rare that a woman who suffers from this anomaly of the blood does not, at least at certain periods, evince the symptoms of chronic catarrh. It is with equal reason that a certain place has been given to scrofulas in the etiology of vaginal leucorrhœa; pulmonary phthisis, which is also often accused, has, in our opinion, more rarely an injurious influence. Finally, it is quite frequent to meet with acute vaginitis during the course of acute exanthe-

mata. This is especially the case in measles; we have even observed, in some young girls of five or six years of age, an abundant flow during the presence of this disease. In this respect we will remark that no age is completely exempt from this affection. Although it is especially peculiar to the adult age, still it is not rare to observe it in young children much before the epoch of puberty, as well as in very old women.

Progress.—When acute catarrh has been recognized in time and properly treated, it does not ordinarily last more than three weeks. Unfortunately, it but too often happens that this period so favorable for cure is allowed to pass, or is spent in the adoption of only insufficient means. Then the disease does not delay becoming chronic and resists all the efforts of the physician. We regard as completely incurable the chronic catarrhs of the vagina which have their source in a profound organic affection of the uterus or its appendages, or which are due to inveterate constitutional diseases. In such cases we may obtain a passing relief, but we cannot hope for a radical cure. The prognosis is much more favorable when the disease is comparatively independent of other affections, and when its relatively short duration, and the modifications of the mucous membrane which are recognized by exploration, permit the presumption that the secretive apparatus has not yet undergone any alteration in its structure, for then the affection will resist all the means that could be employed. In these circumstances the physician may be quite sure to render himself master of the disease with perseverance and a proper choice of remedies.

Treatment.—The first thing to be done against the acute catarrah is to quiet as promptly as possible the inflammatory phenomena. It ordinarily suffices to administer gentle purgatives during many consecutive days, with hip-baths and tepid injections. Local blood-lettings will not be employed except there should be violent pains, a lively redness and a considerable elevation of the temperature of the vagina, as in these cases the high degree of sensibility of the parts will not admit the introduction of the speculum for the application of leeches upon the vaginal walls. We may be content with placing them around the vulva, and encouraging the consecutive hæmorrhage if necessary by ordering a tepid hip-bath. When the acute

phenomena of inflammation have ceased, while the hypersecretion continues even to a feeble degree, we order hip-baths of a less elevated temperature, slightly astringent intra-vaginal injections, and for that we employ a slightly concentrated solution of the perchloride of iron, alum, or nitrate of silver. At the end of two or three weeks the leucorrhœa will have considerably diminished.

Is the disease in a chronic state? we shall often find ourselves obliged to commence the treatment by local blood-lettings. This is necessary every time that the vaginal catarrh is accompanied by congestive or inflammatory accidents on the side of the uterus, the ovaries, the bladder, or the rectum. As then there is generally no pain, the speculum may easily be employed and the blood-letting effected, either from the os tincæ or from the walls of the vagina. Scrupulous attention to cleanliness is a *sine quâ non* for the cure. For this purpose we should prescribe once or twice a day hip-baths or injections. To commence, we should choose a liquid of the temperature of from 77° to 83° Fahrenheit, and subsequently gradually lower. When a great relaxation is present, and when the flow is very abundant, cold water is preferable. Later we may add astringents or tonics to the bath as well as to the injections. We ordinarily employ the perchloride of iron, which is recommended for the certainty of its action and its small price. For the bath we may also employ balls of iron (boules de mars [1]), or a decoction of white oak bark; for the injection, a solution of alum or nitrate of silver. This last medicament easily decomposes in the ordinary injection apperatus, and some carelessness of the patient may damage her linen or the floor, so we prefer to pour it into the vagina by a glass speculum, as we have before described. If the relaxation of the vaginal walls is considerable, the flow very abundant, we should make the solution more concentrated (a drachm of the nitrate to an ounce of water). About two drachms of this may be poured into the speculum, which is gradually withdrawn, to bring the liquid little by little in contact with the whole

[1] These balls are made of four parts of tartrate of potassa and one part of iron filings, boiled with water into a mass, ℥j. to each ball.

vagina. This operation is repeated every three or four days. If at the end of three or four weeks there is not a perceptible improvement, we must proceed to cauterizations of the vagina with the solid stick.

The topical treatment of vaginal leucorrhœa which we have above indicated, is that which the most quickly and surely leads to the desired end. Still in certain cases the nitrate of silver does not act, or if so, very slowly. Other astringents may then be of service. The tincture of iodine, diluted pyroligneous acid, solutions of the acetate of lead, sulphate of zinc, etc., have been advised and employed with benefit; applied upon the vaginal walls by means of a brush. These medicaments have sometimes been found useful by us; still we do not think that they equal the topical application of alum. In a very contracted vagina we must be content with making injections with a solution of this substance; but where the application of a cotton tampon is possible, it should be preferred to the injection, because it imbibes the product of the vaginal secretions, and it preserves the walls of this organ from the contact of the mucus of the cavity of the neck, which is often abundant and irritating. When the mucous membrane is but little sensible, we sprinkle the tampon with pure alum powder; but when the sensibility is great, it is proper to mingle with the alum a sufficient quantity of powdered sugar. Employed pure, the alum from the first or second application ordinarily provokes a very disagreeable sensation of heat and contraction of the vagina, a sensation which sometimes becomes so violent as to compel the interruption of the use of this medicament during one or two weeks; this inconvenience is not to be feared if one or two parts of sugar be added. In any case the tampon of alum ought not to remain more than twelve hours; it need not be applied daily, but only every two or three days. By neglecting this precaution, we run the risk of provoking an acute croupy inflammation of the vagina, after which the leucorrhœa is often more violent. After each tamponing, it is necessary to cleanse the vagina by means of injections of tepid water. [We have found benefit from the local use of the liquor ferri persulphatis, a drachm to half a pint of water.]

After having indicated the topical treatment of catarrh of the

vagina, it remains for us only to add that when a constitutional cause for the disease is recognized, the cure will rarely succeed without a proper internal treatment. We have already said chlorosis plays here an important part; we may combat it by a fortifying regimen and by the use of preparations of iron, ferruginous mineral water applications in drinks and baths. [The solution of the potassii ferrocyanureti ʒij. to ʒij. of cinnamon water we have found especially beneficial in twenty to thirty drop doses three times a day.] For scrofulous subjects we know not how sufficiently to recommend the saline waters of Kissengen, Nauheim, Reichenhall, etc. Before the treatment by baths, we should for a certain time observe an antiscrofulous regimen.

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§ 2. *Diptheritic and Croupy Vaginitis.*

The diptheritic and croupy inflammation of the vaginal mucous membrane existing alone as a primitive affection is quite rare. We have observed it in consequence of traumatic lesions, such as take place during violent exercise and too frequent coitus; sometimes also we have seen vaginal leucorrhœa become a veritable croupy inflammation. But in the greater number of cases this affection is secondary, and is developed during the course of certain diseases of organs immediately neighboring to the vagina. This is what, for example, happens in the cancerous degenerations of the uterus, which produce an abundant and corrosive flow in the vesico- and urethro-vaginal fistulas, in which the contact of urine nourishes a permanent irritation in the walls of the vagina, etc. It is the same when voluminous polypi of the uterus project into the

vagina, ulcerate and secrete a sanious pus; in a word, when any affection of the genital organs becomes the source of an abundant and corrosive flow, the contact of which irritates the vaginal mucous membrane. Sometimes also the diphtherite of the vagina is provoked by the presence of foreign bodies, for example, of a very hard pessary, or one putrified by a long continuance. Finally, this affection is frequently a symptom of a constitutional disease; it is not rare to observe it during the course of metritis, peritonitis, puerperal fevers, in the latter stages of typhoid fever, dysenteries; we have many times seen it declared during the course of acute exanthemata, especially during variola and rubeola.

The vaginal diphtherite may extend over the whole surface of the mucous membrane, or, what is more frequent, it remains limited to certain parts; it is especially the inferior third of this organ which is the most often and most violently attacked. The inflamed part is of a brilliant red, sometimes scarlet, and covered with a more or less thick, yellow or reddish, often very adherent, membranous exudation. When this is removed the exposed portion easily bleeds. Then where the mucous membrane is not covered with false membrane, the papillæ appear in the form of points darkly and sharply circumscribed. The temperature of the vagina is much elevated, its sensibility considerably augmented; it is the seat of excessively painful spasmodic constrictions. At the highest period of the disease, the secretion of the mucous membrane is diminished; later, after the fall of the membranes, it becomes very abundant, it is then a muco-purulent leucorrhœa. In certain cases there is, during the first days, a feeble sanguineous or sanguinolent flow; this is especially the case when the disease is declared a little before the courses. It is not, furthermore, rare that the latter are modified by the vaginitis. We have sometimes seen them suddenly completely suppressed, while in other cases they were extraordinarily abundant and constituted a veritable menorrhagia. Frequently the diphtherite extends from the vagina to the adjacent organs, to the external genital parts, to the urethra, the bladder, womb, sometimes even to the rectum and peritoneum, when we see all the phenomena peculiar to these inflammations appear. The partial diptherites of the vagina,

such as are observed in vesico-vaginal fistulas during the course of uterine cancer, etc., are not ordinarily accompanied by well-pronounced febrile movements, while the fever almost never fails when the disease is primary, is developed in consequence of a traumatic lesion, in blenorrhagic infection, etc., and attacks the vaginal walls in a considerable extent.

The primary vaginal diphtherite generally yields at the end of a little time to proper treatment and even to a simple dietetic regimen; it is the same when it accompanies the constitutional diseases which we have enumerated. But when its cause is fistula, or a uterine disease which keeps up a constant contact of the vaginal walls with corrosive liquids, it is then a most obstinate disease, which resists all the means brought against it. It is true that we succeed the most often in moderating it by scrupulous, minute care for cleanliness; but it always returns to its old intensity as soon as this care ceases or is even neglected. Under these circumstances, it is not rare to see ulcerations form in the mucous membrane, followed by deep losses of substance, which may later, by their cicatrization, produce constrictions of the vaginal canal. Still, the most common termination is its passage into chronic catarrh, which is almost always observed when the croupy vaginitis is not properly treated, or when the patient, after convalescence, has committed some fault in regimen. It is useless to add that in regard to prognosis, the complications which we have mentioned (metritis, cystitis, peritonitis, etc.) deserve consideration.

The various forms of primitive vaginal diphtheritis which we have above distinguished from their causes, generally require an antiphlogistic treatment. Although, in our days, a sensible physician cannot have the idea of combating this disease successfully by the aid of general bleedings, there are, however, cases in which the intensity of the pains, the violence of the fever, and the danger of the transmission of the disease to the adjacent organs, render local blood-lettings necessary. The most proper manner of practising it is by the use of six or eight leeches applied upon the internal surface of the labia majora. It is only when the circumstances in which the patient may be do not allow this the best of all applications, that we may produce sanguineous emissions from the perineum or from the internal

surface of the thighs. The great sensibility of the vaginal walls will not allow the introduction of a speculum, so as to place the leeches upon the vagina itself. Besides the blood-lettings, injections, entire or partial tepid baths, emollient fomentations upon the hypogastrium, will render good service against the pains; the convulsive constrictions of the vagina will promptly yield to a lavement of opium or belladonna, the constipating action of which we may combat by administering for many successive days a slight purgative. So soon as the sensibility of the vagina shall have ceased, when the temperature shall be lessened, when the dry state of the mucous membrane, which rarely fails in the first stages, shall have given place to a puriform secretion, we may pass to intra-vaginal injection of a slightly concentrated solution of nitrate of silver. If the leucorrhœa yields not, we may have recourse to the various means indicated in speaking of the treatment of chronic catarrh. As to the regimen to be observed, we will add that an absolute repose, as well moral as physical, abstinence from all exciting drinks and nourishment, are indispensable conditions for a cure.

The secondary inflammations, above all, demand the removal of the causes which have produced them. We cannot, for example, hope for any good result from treatment, so long as the ulcerated polypus be not extirpated, the pessary which irritates the vagina removed, or the fistula cured. So long as these causes exist, the physician will be reduced to attending to the means for cleanliness consisting of hip baths and injections of tepid water, decoctions of chamomile, green tea, solutions of the chloride of lime, etc. The latter will be especially useful when the flow is sanious and fetid. When the membranous vaginitis is declared during the course of the general diseases which we have enumerated, it is only of secondary importance and ordinarily disappears of itself with the affection which has caused it. We must only take care to keep the vagina in the most perfect cleanliness. Often, however, a chronic leucorrhœa remains which should be treated according to the rules we have above given.

Art. VI.—Neoplasmata of the Vagina.

We have to occupy ourselves here with cysts, round fibroids, and polypous formations, mucous polypi, cancroids, and cancer of the vagina.

§ 1. *Cysts of the Vagina.*

The vagina is only exceptionally the seat of cysts; up to the present, we have but once observed formations of this character: it was a pocket without opening, filled with a serous liquid and projecting into the vaginal canal. In autopsies, cysts are found quite often, from the size of a pea to that of a cherry, close by the vagina; but an exact exploration has always made it appear that these neoplasmata were not developed in the walls of the organ, but rather in the peri-vaginal cellular tissue. Rokitansky also admits that the primitive seat of cysts is out of the vagina, in the surrounding conjunctive tissue, and which in an anatomical point of view has but a secondary relation with the vagina.

In the case which we have just cited, the tumor of the size of a pigeon's egg, which projected into the vagina, appeared to be very slowly developed, for the patient related to us that she was suffering for many years with a very disagreeable sensation, located in the place of the cyst, every time that she indulged in coitus. The pains insensibly had so augmented that the satisfaction of the sexual necessities became completely impossible. By the touch we recognized in the anterior and right part of the vagina a very extended tumor, but still yielding to pressure and giving a certain sensation of fluctuation; the contact of the finger provoked severe pains therein. The introduction of the speculum was also very painful; it permitted us to see in the place of the cyst and its immediate neighborhood, a highly colored redness of the mucous membrane, which was at the same time the seat of sufficiently abundant hypersecretion. We thrust a pointed bistoury into the wall of the cyst directed toward the vagina, then we made an incision nearly an inch long; there flowed forth about an ounce of a serous fluid clear as water. The finger carried into the cavity of the sac found it

perfectly close and clothed with a smooth membrane. To prevent its reforming and refilling, during a fortnight afterward we made injections of a solution of nitrate of silver into the cavity of the cyst. This means appeared to perfectly succeed; at least, six months after the operation, we found, on exploration, no trace of the tumor.

§ 2. *Fibrous Tumors of the Vagina.*

In the vagina, as in the uterus, we observe two kinds of fibrous tumors, the fibrous bodies or rounded fibroids, and the pediculated fibroids or fibrous polypi. We will examine them separately.

A.—*Fibrous Bodies.*

We cannot agree with Kiwisch when he declares that the majority of the rounded fibroids of the vagina are primitively developed in the uterus, and that it is only later that they are extended into the vaginal wall. In many cases this assertion is very true, and it is equally true that the fibroids of the vagina are ordinarily met with in concert with the analogous tumors of the womb; still we have acquired the certainty, as well from the cadaver as the living body that the vagina may also be the seat of fibrous tumors entirely independent of the uterus.

The fibrous bodies develop either in the sub-mucous cellular tissue, in the properly so-called muscular tunic, or finally in the layer of cellular tissue which surrounds the latter. The sub-mucous tumors are rarely of considerable volume; they form tubercles of the size of a pea, or a bean, at the most of a nut, hard and sharply circumscribed; the fibroids which are developed in the deeper layers attain, on the contrary, a considerable size, in such a manner as to almost entirely obstruct the pelvic canal, to notably contract the vagina, to compress the bladder and rectum, which joined to the compression of the vessels and the nerves of the pelvis, often become the source of all sorts of accidents to the patient, and complicate still more frequently the morbid phenomena due to the presence of a fibroid of the womb.

The diagnosis of small sub-mucous tumors which project into the vagina ordinarily presents no difficulty, a slightly attentive manual examination will easily recognize them. But when we have to do with a very voluminous tumor, it is often difficult and even impossible to distinguish if its seat is really in the wall of the vagina, in the adjacent cellular tissue, if it has commenced to be developed in the uterus, or finally, if starting from the wall of the pelvis, it has increased on the side of the vagina. This inconvenience, however, is but of secondary importance to the practitioner.

It has been proposed to extirpate the fibrous tumors of the vagina. This operation has even been sometimes executed; still we think that we should not have recourse to it except when we can be assured that it is well circumscribed and entirely independent of the organs situated more deeply in the pelvis. But as in these circumstances the fibroid will not easily provoke accidents sufficiently pressing to justify so grave and dangerous an operation, it will rarely be decided upon. As to the rest of the treatment, there is nothing to distinguish it from those of the fibroids of the womb of which we have spoken.

B.—*Fibrous Polypi.*

Veit asserts that the polypi of the vagina present the same structure as the mucous polypi of the uterus; this assertion evidently is based upon an insufficient number of observations; for there may also, though rarely, be developed in the vaginal partitions polypiform neoplasmata which are in no respect distinguishable in their structure from the fibrous polypi of the womb. We have ourselves excised with the scissors a polypus of the size of a hen's egg, which was attached by a very small pedicle to the right vaginal wall; the microscopic examination showed fibres of conjunctive tissue and muscular fibres; it had generally all the characters of a fibrous polypus. The patient had suffered for eighteen months with flows of blood and sanious matters from the vulva, accompanied by a disagreeable sensation of pressure in the pelvis, frequent desire to urinate, and troubles in defecation; all the symptoms had supervened for the first time some time after a regular accouchement. Upon excision there was a violent hæmorrhage, which how-

ever ceased after the application of a tampon of lint dipped in a solution of the perchloride of iron.

The practitioner may establish the diagnosis by assuring himself that the pedicle of the tumor, which is situated in the vagina or before the vulva, has its point of departure from the vaginal wall; while the os tincæ shows its natural configuration, or at least it allows no foreign body to pass through its orifice.

So soon as a polypus of this character is recognized, we should proceed to its extirpation; the rules for which are the same which we have indicated for the treatment of polypi of the womb.

§ 3. *Mucous Polypi.*

The vaginal walls may be the seat of neoplasmata perfectly identical, as to their structure, with mucous polypi of the uterus. These tumors are more frequent than the fibrous polypi of which we have spoken. We have already described their texture in treating of neoplasmata of the womb. In the vagina these productions ordinarily do not determine any accidents except when they have attained a certain volume, the size of a nut or a pigeon's egg. In these cases they frequently occasion an abundant leucorrhœa and more or less copious hæmorrhages; the touch or coitus are very painful; these tumors are especially inconvenient when they are seated in the anterior wall and compress or distend the vesical neck and urethra. This dragging especially takes place when the tumor has already passed either entirely or partially the entrance of the vagina, for then the pedicle and the place of its insertion are exposed to a permanent tension. It has not been long since we had occasion to recognize this fact in a case which we observed in connection with Dr. Geigel.

The volume and consistency of the tumor, the thickness and length of its pedicle, will decide if the extirpation ought to be made by means of excision or the ligature.

§ 4. *Cancroids.*

The cancroid tumors ordinarily develop in the vagina consecutively, by the extension of an analogous affection of the

neck of the womb; still they are sometimes completely independent of this latter organ, and may then be located in all parts of the vagina; finally they may also extend to the external genital parts at the inferior extremity of the vagina. With the exception of a case which we observed in the year 1857, at our gynecological clinic, we have always met this affection associated with the cauliflower vegetations of the womb. The exploration disclosed a more or less voluminous tumor escaping from the os tincæ, and showing all the characteristics of cauliflower, while the fundus of the vagina was sprinkled with a great number of vegetations with a large base, of the size of a pea to that of a nut, covered with asperities and of a mean consistence. In these cases the cancroid of the vagina was of but a secondary importance, the affection of the womb being much more serious. In one of the patients at our clinic the fundus of the vagina occupied by these tuberosities was so soft and friable, that during an injection imprudently administered by a nurse, it yielded to the pressure of the tin canula of the syringe, and was torn in such a manner as to allow a solution of the perchloride of iron, employed for the injection, to pass into the abdomen, which occasioned a peritonitis which speedily became fatal. At the opening of the cadaver not only the surroundings of the wound, but also the surface of the intestines situated in the umbilical region, were found covered with a thick layer of sulphate of iron.

The presence of cancroid tumors in the vagina renders the prognosis of cauliflower of the uterus still more unfavorable, for then we cannot hope for any success from the excision of the uterine tumor. Thus the existence of vaginal tumors is for us a contra-indication for the operation.

If it is permitted for us to draw conclusions from a relatively very contracted number of observations, we think that cancroid of the vagina cannot give occasion for an operation; we dare not decide if the employment of caustics might have some success, but in judging from the efficaciousness in the analogous affections of the womb, there is no great thing to hope from it. The physician ought then to limit himself to a symptomatic treatment, directed principally against the purulent or sanious discharge of blood.

§ 5. *Cancer.*

The vagina is very rarely the seat of a primitive cancerous affection, but it happens so much the more often that its walls are affected by cancer of the womb; it is less frequent that the disease originates in the external genital parts, in the rectum, or in the cellular tissue of the pelvis.

Whether it is primitive or secondary, the cancer of the vagina is ordinarily of a medullary character, it is an infiltration which penetrates all the layers of the vaginal walls and extends more or less upon its surface.

The fibrous variety, which is more rare, ordinarily appears under the form of tuberosities of the size of a nut to that of a pigeon's egg; they are hard and sprinkled here and there in the vagina. Up to the present we have observed them only by the side of cancerous affections of other organs, particularly of the breasts, liver and peritoneum; but other physicians say that they have met them independently of these affections and combined with the medullary cancer of the womb.

The infiltration of the walls, quite as often as the formation of isolated tuberosities of which we are about to speak, notably contract the vaginal canal, either in its entire extent, or only in some one of its parts; the infiltrated tissues, like the excrescences, are hard and resisting to the touch. Still it sometimes happens that there are developed, especially upon the parts infiltrated with medullary substance, pediculated fungous vegetations, tender and even gelatinous, which by their great vascularity often occasion abundant hæmorrhages. When the infiltrated tissues soften and putrefy, the neighboring parts are also frequently affected; perforations of the bladder and rectum are made, which give rise to the formation of often very extended vesico- and recto-vaginal fistulas. If the perforation takes place from the fundus of the vagina into the abdomen, it is followed by a fatal peritonitis. Sometimes the neighboring cellular tissue takes part in the mortification of the vaginal walls, it then forms vast purulent and sanious foyers, which destroy the muscles lining the internal surface of the pelvis and which may even determine caries of the pelvic bones.

It is unnecessary to state that the treatment cannot but be symptomatic; we refer the reader to what we have said respecting cancerous affections of the uterus.

Art. VII.—Neurosis of the Vagina.

§ 1. *Spasm.*

The very considerable quantity of muscular fibres which the vaginal walls possess explains sufficiently the spasmodic contractions of which they may be the seat. These cramps are limited to the part which corresponds to the constrictor muscle, or indeed they extend to the entire organ. The first cause is always an excess of irritability of the nervous system of the genital apparatus, sometimes limited to these organs, but often accompanying an analogous nervous affection in other organs. Up to the present, we have ordinarily never encountered this excess of irritability, but in connection with affections of the sexual apparatus accessible to exploration. It especially accompanies anteversions and retroversions, flexions, chronic inflammations of the uterus, fibroids and cancerous degenerations of this organ, acute and chronic phlegmasias, as well as tumors of the ovary. It is also not rare that the spasm of the vagina is connected with spasmodic affections of the urethra, of the bladder and the rectum; but as often the disease has for its cause an abnormal irritability of the whole nervous system which then determines nervous affections, more or less marked in the most diverse organs, affections known under the name of **hysteria.** In the majority of cases where we have met with vaginal spasm connected with the local affections which we just named, the presence of hysteria was not doubtful; which, however, is not astonishing, for we know that this neurosis is often due to a long irritation of the genital parts.

The dominant symptom of vaginal spasm is a very disagreeable sensation, sometimes even painful, of retraction and constriction of this organ. This sensation is spontaneous, it appears without any external cause coming to excite it, or, indeed, it is perceived only under the influence of certain irri-

tations of the sexual apparatus. We have known women who complained of it every time that they indulged in the exercise of coitus; with others the cramps were provoked by violent movements of the body, by walking, the movement of a carriage or of a horse, the action of heat, as for example when they covered the lower part of their body with thick eider down coverlets. In hysterical women spasm of the vagina frequently takes place in consequence of a violent emotion; generally it is stronger and more frequent at the period of the menstrual effort, when the sexual organs are the seat of a considerable congestion; still we remember some cases where the disease showed exactly at this epoch an almost constant remission. When it is well marked, it is frequently accompanied by other nervous phenomena of the vagina or the adjacent organs; we will only cite pruritus of the vagina and vulva, vesical and rectal tenesmus and a great number of other symptoms called dysmenorrhœal.

For the **prognosis** we will remark that vaginal spasm yields most surely to the means opposed to it when we have made the affection of the uterus, ovaries and nervous system disappear, which is the first cause of it; still, we have often observed that the neurosis which occupies our attention may cease, at least for a long time, even when the primitive disease is not susceptible of a radical cure. Still the physician ought to be very reserved in the prognosis, for sometimes all means fail.

After what we have said, the practitioner ought above all to direct the **treatment** against the complication of the neurosis. On this subject we refer the reader to the chapters of this work, where we have spoken of these various affections. We will but mention here the procedure which till now has appeared to us to be the most proper to directly combat the abnormal state of the irritation of the motor apparatus of the vagina.

In all the cases where the spasm is accompanied by a congestion of the pelvic organs, we should commence by practising a moderate local blood-letting, and the more as this means has sometimes sufficed to make the disease completely disappear. Should this not be the case, we may pass to the employment of

narcotics. We will especially recommend opium and belladonna administered in lavement, the introduction into the vagina of a small quantity of the leaves of belladonna previously soaked in boiling water, or indeed fomentations upon the hypogastrium with the leaves prepared in the same manner; further, we must try to diminish the sensibility of the vaginal walls by hip-baths and injections of tepid water, and remove during the whole course of the treatment all which can act in an irritating manner upon the sexual instinct.

With hysterical women, we should second the action of topical remedies by administering internally **anti-hysteric medicines.** When the disease is accompanied with symptoms of chlorosis, which often happens, the preparations of iron, and especially the ferruginous waters of Franzensbad, Schwalbach, Brückenau, etc., will do excellent service. In a case which resisted every means which was opposed against it, Fowler's arsenical solution, administered in increasing doses (from 2 to 10 drops per diem) produced a surprising action. The calladium sequinum which has been so highly recommended lately for pruritus of the vulva has been found useless every time that we have employed it against vaginal spasm.

§ 2. *Pruritus of the Vagina.*

Pruritus of the vagina is a hyperæsthesia of the sensitive nerves of this organ revealing itself by a sensation of itching continuous or intermittent, sometimes elevated to an insupportable degree.

This affection, according to our observation, is more frequent than is generally thought. It is idiopathic, without any connection with any other disease of the sexual organs, or secondary, and then appears in consequence of various affections of the uterus, vagina, ovaries, etc. While in certain cases the pruritus remains limited to the vaginal walls, it extends the most often to the labia majora and minora, and sometimes even to the pubes and perineum; it is sometimes so insupportable, that it is not possible for the patient, notwithstanding a very firm will, to resist the violent desire to scratch and rub herself

to deliver herself, at least momentarily, from this very disagreeable sensation. We often find, not only upon the external genital parts, but also at the inferior extremity of the vagina, numerous excoriations partially covered with scabs which present a repulsive appearance. The frictions often also provoke a hyperæmia which itself occasions in its turn follicular inflammations and hypersecretions of the mucous membrane of the vagina and the lips of the vulva. These alterations almost always accompanying pruritus have been taken by many practitioners for the fundamental evil. Although we cannot deny that acute or chronic catarrhs do not often precede this affection, still we can with certainty advance the proposition that it is not very rare to observe a very marked pruritus without its being accompanied by an affection of the mucous membrane.

We have oftenest met vaginal pruritus as a **primitive affection,** without any other visible disease of the genital apparatus, in aged women, and already in the decline of life; in the secondary state we have often seen it accompany vaginal spasm, the most various displacements of the uterus, flexions, fibroids, and especially cancerous degenerations of this organ. We also see it, though more rarely as an epiphenomenon of acute and chronic affections of the ovaries, catarrhal and croupal vaginitis, neuralgias and spasms of the bladder and rectum. The itching is sometimes only felt during menstruation, when it is, at least at this epoch, subject to notable excoriations.

The majority of gynecologists consider vaginal pruritus as a very difficult and very obstinate affection to cure. We cannot be entirely of the same opinion, for up to the present we have always succeeded in radically removing the disease in a little time, or at least in diminishing it sufficiently that our patients are scarcely incommoded, and that only at long intervals. The prognosis is generally more favorable when the pruritus is a simple neurosis and is not symptomatic of an organic affection; in such circumstances we do not remember a single case where it has resisted the means which we have opposed to it. The success is least certain when the neurosis accompanies some incurable disease of the genital organs; especially it is not

rare for women affected with cancer of the womb to be tormented till death by this distressing symptom.

The number of medicaments recommended against pruritus is too great for us to give an enumeration here, however incomplete. We prefer to name only those with which we have experimented with more or less success.

The sensation of heat in the vagina which ordinarily accompanies the itching yields most easily to topical sanguineous emissions, to hip-baths and injections of tepid water; the dryness of these parts, very disagreeable to the patient, is moderated by the use of emollient injections. To combat the hyperæsthesia itself, we ordinarily commence by applying upon the vaginal walls, by means of a brush, a liniment of chloroform consisting of two parts of chloroform in thirty of almond oil; the external parts are also rubbed therewith, if they are the seat of the itching. This is the procedure which, compared with others, we have found the most efficacious, and we could cite many cases in which the pruritus completely disappeared after the first application of the chloroform; sometimes, however, this medicament has failed where others were efficacious. Alum deserves to be mentioned in the second place; it is introduced in the form of powder, mixed equally with white sugar, by means of a tampon of cotton which is left during six to twelve hours. After it is withdrawn, the vagina should be washed with an injection of a solution of alum (thirty parts to five hundred parts of water). At the end of about twelve hours, this procedure is repeated, and is regularly continued for a week. If at the end of this time the disease has not disappeared, or at least much diminished, the tampon should be powdered with pure alum; it will then excite a painful feeling of heat and constriction; still its action is quite sure. If it still continues, we should proceed to the cauterization of the vagina by means of a stick of nitrate of silver. A great number of practitioners recommend the internal use of narcotics; the repeated trials which we have made of this means are not encouraging; the application of a solution of creasote or borax on the diseased parts have little certain effect. Latterly, Scholz of Breslau, has employed calladium sequinum, after having tried it in a great number of cases;

this medicament deserves consideration, for although at first it inspired us with little confidence, the experiments we have made with it have been many times crowned with full success, and we cannot do better than to engage others in further trials.

PART SIXTH.

PATHOLOGY AND THERAPEUTICS OF THE DISEASES OF THE EXTERNAL GENITAL ORGANS.

§ 1. *Absence and Rudimentary Development.*

The **complete absence** of the external genital organs has not yet been observed, to our knowledge at least, except in dead and non-viable monsters, so it is not for us of a great importance. The **absence of some one of the external organs** being met with, on the contrary, sometimes in adult women, it is within the department of the gynecologist.

The most marked deformity of this category is where the vagina is absent completely, or is defective only in its inferior extremity, the vulva presenting but a tunnel-shaped excavation, situated between the labia majora, at the bottom of which is found the meatus urinarius almost always dilated. The labia minora, the hymen, the clitoris are seldom completely wanting in these cases, or there only remains some rudiments of them. Observations are reported, according to which women affected with this fault of conformation have indulged in coitus several times, and the virile member had constantly and insensibly penetrated deeper into the dilated canal of the urethra.

The **apparent absence** of some of the organs which constitute the vulva, may also be due to the **adhesion of the labia majora,** as well congenital as acquired. In these cases the vulva is more or less completely closed, and in its place we see only a chink formed by the union of its lips. This anomaly is either congenital or is acquired in consequence of an adhesion of the borders of the lips, resulting from an exudation or an ulceration, which most often takes place at a very tender age. In the first case the clitoris sometimes presents an extraordinary

development; it is very prominent, and has upon its inferior surface a small opening for the passage of urine. This deformity often gives rise to errors upon the subject of the sex of the individual. Madame Boivin[1] reports a case where the error was much more easy; the lips contained loops of intestines, and the hernia had been taken for the testicle. The congenital absence of the clitoris has not yet been observed by itself alone, but always in connection with other vices of conformation of internal or external organs.

The **complete absence of the great and small labia** has already been observed. We have once seen it in a new-born child; the entrance of the vagina was enormous. Riolan reports a case where the left labium majus alone was absent. From the account of Seggel,[2] the congenital absence of the labia is not rare among people where the excision of these parts is a religious custom.

The **hymen,** as is known, is completely absent in the embryo; in a new-born child it forms but a minute fold of the mucous membrane, which is insensibly elevated until the age of puberty. In many women it is very little developed, and this circumstance ought to be always borne in mind when there is a question as to the virginity of any one.

Sometimes the anus is found immediately below the vulva in consequence of the **complete absence of the perineum.** In these cases the vulva appears a little drawn out in length, and the posterior commissure of the labia majora approaches the end of the sacrum. The absence of the perineum is also observed in the cases of cloaca in which the extremity of the rectum is confounded with the inferior part of the vagina, in such a manner that these two organs debouch exteriorly by a common canal. The superior commissure is entirely wanting when a division of the symphysis pubis exists, as ordinarily occurs in extrophy of the bladder. Of all the faults of conformation which we have enumerated, there is only the adhesion of the labia which is accessible to the skill of the physician. We will return to this hereafter.

[1] Mal. de l'utérus, etc., vol. i., p. 61.

[2] Die æusseren Genitalien des Weibes. Würzburg, 1851, p. 21.

§ 2. *Anomalies by Excess of Growth.*

A. The **excess of the volume of the greater and lesser labia** which, under the name of **apron**, is peculiar to the Hottentots and to the houzouana women, is also sometimes met with among Europeans. We know a family residing in the environs of Würzburg, the mother and three daughters of which have the labia excessively developed. This fault of conformation is distinguished from other forms of hypertrophy, in that the tegumentary tissue as well as the deeper layers, do not present abnormal manifestation in their structure. The excess of development of the labia is ordinarily accompanied by a hypersecretion of the sebaceous glands, and the sudorific follicles, more or less disagreeable to the patient, incommoding them when standing or walking, and even impeding coitus. To remove this anomaly, there is no other means than nymphotomy or circumcision, employed among certain people of Asia and Africa. This operation consists in excising with a bistoury the superfluous parts of the labia. It is more rare to meet with **supernumerary labia.** Furthermore, it would seem that this anomaly is not always an excess of development, but rather an abnormal division of these organs. Finally, authors also relate the observation of the augmentation in volume of the posterior commissure of the labia majora with contraction of the vulva, a deformity easy to correct by an incision of slight depth made into the hypertrophied commissure.

B. The **excessive development of the clitoris,** which gives to this organ the form of the virile member, is, in a majority of cases, a deformity acquired at quite an advanced age. Still, it is also sometimes congenital, but then it is almost always accompanied by other vices of conformation, such as the absence of the vagina, labia, etc. The cases related by authors, of the existence of a double clitoris, rest mostly, without doubt, upon errors of observation. An exact examination of the passages relative to this subject demonstrates that a clitoris divided at its extremity has been taken for two distinct and separate organs. [We have seen a clitoris three inches in length in a colored woman, about 36 years of age, the extremity of which

was gangrenous and the remainder ulcerated and covered with crusts. It was supposed to be syphilitic, and was removed by the knife, and constitutional treatment being followed up, there was no return.]

C. The **hymen,** by excessive growth, can elevate itself to the superior border of the entrance of the vagina; obliterate it completely and constitute a form of atresia, which, by the retention of menstrual blood, the difficulty of coition, etc., may be the source of various inconveniences, which an operation can alone remove. Hereafter we will occupy ourselves about the details (See *Atresia of the Hymen*, page 558). In certain very rare cases, the hymen is developed in such a manner as to form a prominence from four lines to an inch in length, projecting between the labia majora. We have observed this disease in an infant two years old, and we excised it with scissors. We find an analogous fact cited in the work of Boivin and Dugès; the fleshy tumor formed by the hymen was removed by ligature. (*Traité des Maladies de l'Utérus*, vol. i., p. 59.)

D. We should also rank among the anomalies which now occupy us, the **premature development** of the entirety of these external organs. It is ordinarily united to premature puberty, characterized by the hasty awakening of sexual instinct, the development of the breasts, and the existence of the menstrual molimen before the ordinary epoch, which leads us to infer the maturity of the internal organs.

§ 3. *Anomalies caused by Unnatural Adhesions.*

A. We have already said that the borders of the labia majora and minora sometimes adhere to one another in consequence of a fault of conformation. This adhesion, which has been called **labial atresia,** is rarely complete. Should it be so, the anomaly not being recognized, and operated upon immediately after birth, the impossibilty of urinating will necessarily cause the death of the patient. Ashwell [1] reports a case of this kind; the place of the adhesion was indicated by a furrow leading from the base of the pubis to the perineum. Incom-

[1] Practical Treatise of the Diseases peculiar to Women.

plete atresias are much more frequent. We have already observed two. In both cases the two inferior thirds of the borders of the labia majora adhered to one another; above them remained a sufficiently spacious opening to permit the flowing of urine and menstrual blood. One of these patients was married for three years when she decided to consult us. We cut the furrow formed by the borders of the lips upon a canulated sound introduced through the superior opening, and we prevented the contact of the borders by placing in the wound small compresses of cloth. Eleven months afterward this woman, till then sterile, gave birth to a little girl, which also had an atresia of the posterior fourth of the labia majora. Other physicians state that they have observed this fault of conformation to be hereditary.

B. The **atresia of the hymen** due to an imperfection of this organ is more frequent than labial atresia. Up to the present we have treated five young girls having this anomaly. None of them had been incommoded before the age of puberty. From two to eight months after their first menstrual molimen, which naturally did not determine any external hæmorrhage, there were established at certain epochs (with two of them every four weeks) violent colics, a very disagreeable dragging toward the sacrum, the feeling of a foreign body which wanted to escape from the pelvis, and sometimes these accidents were accompanied by a quite strong febrile reaction. All these patients during the course of their disease had lost much of their plumpness and their good looks, and all evinced symptoms of chlorosis. With one of them, whose courses had been obstructed during eight months, the fundus of the uterus was felt nearly two inches above the symphysis pubis. The hypogastrium and particularly the uterine region was always excessively sensitive to the lightest touch. On rectal exploration we found the vagina sufficiently dilated; a very evident fluctuation permitted the recognition with certainty of the presence of liquid collected in the vaginal canal. By the inspection of the external parts, between the labia, an elastic tumor of a deep red color, and as large as an apple, was perceived in two cases; in the other three cases it was necessary first to separate the labia in order to perceive the hymen, which we found

obliterating the entrance of the vagina, and colored of a deep red by the blood visible through the diaphanous membrane that distended it and pushed it forward.

After having well established the diagnosis, we incised the obliterating membrane longitudinally by means of a lancet, and there always flowed out a considerable quantity of black blood. In three cases the flow lasted many hours after the operation, and was accompanied with quite violent expulsive pains. In our five patients menstruation did not delay in being regulated after the cure of the chlorosis. We cannot omit to notice the following observation occurring in our practice. A girl of nineteen years, suffering for two years with quite violent dysmenorrhœic accidents, the cause of which was the imperforation of the hymen, when during an access of colic this organ was suddenly ruptured, and allowed the escape of almost two pounds of fetid and decomposed blood. As soon as possible after this accident, which very much frightened the patient and her companions, we were called and we were able to convince ourselves of the rupture which had occurred; the hymen hung in many irregular strips out of the entrance of the vagina.

§ 4. *Hernia of the External Genital Organs.*

We distinguish two forms of these hernias according as the displaced intestine is found in the labia majora or toward the perineum, the hernia labial and the hernia perineal.

A. **Labial hernias** can be formed in two ways; a portion of the intestine or mesentery is engaged in the inguinal canal, then descends gradually, as in the scrotal hernia of men, into the labia majora, where the displaced organs, pushing before them the pelvic peritoneum either in front or behind the broad ligament of the uterus, break a way through the pelvic aponeurosis and the anterior part of the elevator muscle of the anus, and continually advancing, finish by arriving at the lower part of the labia majora, after having to some extent elongated the lateral wall of the vagina; this variety is called **labio-vaginal hernia.** In certain very rare cases, in hernias of this kind, there is found by the side of the intestine and mesentery the bladder or the corresponding ovary. They are formed

slowly or suddenly after a violent effort of the abdominal muscles, in lifting a heavy load, coughing, sneezing, etc. Seiler[1] and others think that the dilatation of the aponeurosis of the pelvis, due to numerous confinements, predisposes to their formation. [The only case which has come to our personal knowledge was in a primipara, some six months advanced.] They have also been many times observed with the recto-uterine and vaginal prolapsus.

For the diagnosis of these hernias we must pay attention to their form, which is round or oval, to the color of the skin, which is normal when there is no strangulation; they are not generally painful, have little consistency; when they contain a sufficiently large loop of intestine, percussion yields a tympanitic sound. In those cases where the bladder makes a part of the hernia the tumor increases in volume whenever the urine is retained for several hours. Finally it is also important to know that these tumors are mostly reducible, and that they reappear whenever the patient coughs, sneezes, etc.—A. Cooper and Scarpa have observed the strangulation of these hernias; still it always yields to taxis. The reduction is made in the following manner; we seek, by uniformly compressing the labia, to press the tumor into the superior part of the canal, then two fingers carried into the vagina, the lateral wall of which is swollen, push it still higher, and following it until it can be no longer reached. The hernia is retained by placing in the vagina a sponge or a proper pessary. The reduction of labio-inguinal hernias takes place in the same manner as scrotal hernias.

B. The **perineal hernia** is distinguished from the preceding in that the displaced viscera open a way through the pelvic aponeurosis and the elevator muscle of the anus to immediately below the skin of the perineum, and thus come to form a larger or smaller tumor upon some part of the floor of the pelvis, while in the labio-inguinal hernia they are carried forward after having traversed the elevator ani, and appear in the base of the labia majora. The perineal hernias are quite rare; we think that in the majority of cases they are

[1] Rust, Handb. der Chirurg. vol. viii., Art. Hernia perinealis.

developed in consequence of a vaginal enterocele, which we have above described; they are tumors of the size of a pigeon's egg to that of a hen's egg, rarely larger, without change in the integuments and little sensitive; they are distinguished from other tumors of these parts by their frequent variations in size, their reducibility and the functional troubles of the intestinal canal which frequently accompany them. The taxis generally easily succeeds; when the hernia is voluminous, it is necessary to retain it by means of a T bandage strongly compressing the perineum. Still this bandage will not always fulfill this end, for it sometimes happens that the tumor does not appear except in the efforts of the abdominal muscles required by defecation; and it is exactly during this act that this retaining bandage must be removed. We made this observation in a woman who had a fibroid of the uterus of the size of an infant's head: during our treatment a very voluminous perineal hernia was developed, which appeared only when the patient stooped or went to stool; it never was manifested when she was standing, lying or sitting.

§ 5. *Inflammation, Exanthemata, Ulcerations.*

A.—*The Labia Maiora.*

1. The external surface of the labia majora is often the seat of painful **erythema,** in consequence of an exterior irritation. This is especially observed among very fat women, who neglect the care of cleanliness during very warm weather, after a long walk, etc. This erythema is characterized by a deep coloration, sometimes also livid and diffuse, of the integuments which, when the disease is violent, are also slightly tumefied and with a sensation of burning, more or less painful, increased by the least contact and especially by the rubbing which takes place during walking. The erysipelatous redness rarely remains limited to the external surface of the labia, but ordinarily also extends to the internal surface of the thighs. When the diseased parts remain a long time exposed to the irritating causes which we have mentioned, the erythema may become a veritable **erysipelatous inflammation,** accompanied, when it is well

marked, by feverish excitement. and ordinarily ırrh
of the mucous membrane and the urethra, the t of
the vagina, or even the entire organs; the viol ıuit-
ing torment the patient to the highest degree. The erysipelas of the labia majora is sometimes secondary, it appears during the course of typhus, puerperal fever, and acute exanthemata; in these cases it often terminates by gangrene and the destruction of a greater or smaller part of the lips; neither is it rare to meet with it when these organs are exposed during a long time to contact with irritating and corrosive discharges, as for example in urinary fistulas of the vagina, in cancerous affections of the genital apparatus, and in abundant leucorrhœas of the uterus and the vagina. Finally, we find facts in the annals of science, which prove that the erysipelas of the labia majora may habitually appear at each menstruation. Erysipelas, as well as erythema, has a greater practical importance from the inconveniences which it causes than from its gravity; for with the exception of the erysipelas which appears during the course of the diseases which we have named, and which sometimes may determine gangrene, these affections ordmarily yield to a proper regimen without our having the need of using topical medication. Repose and repeated lotions of tepid water will make the slight erythemas disappear in a few hours; when the inflammation has attained a more elevated degree, we may have recourse to frictions with oily liniments, fomentations with Goulard water by means of little compresses wetted therewith, to the application, by means of a brush, of a diluted solution of nitrate of silver, and to cold hip baths. Against the erysipelas we may order fomentations with hot cloths, we may besmear the affected parts with oil of linseed or almonds, and in general we should employ the same medicaments which are used against erysipelas of other
ſ the body which we will find indicated in all works on
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nother frequent affection of the labia majora, is the
ılar folliculitis of Huguier,[1] that is to say the inflamma-

[1] Mémoires sur les maladies des appareils sécréteurs des organes g nitaux externes de la femme. (Mémoires de l'Académie de médecine. Paris, 1850, vol. xv., p. 525.)

tion of the numerous pileous and sebaceous glands of this organ.

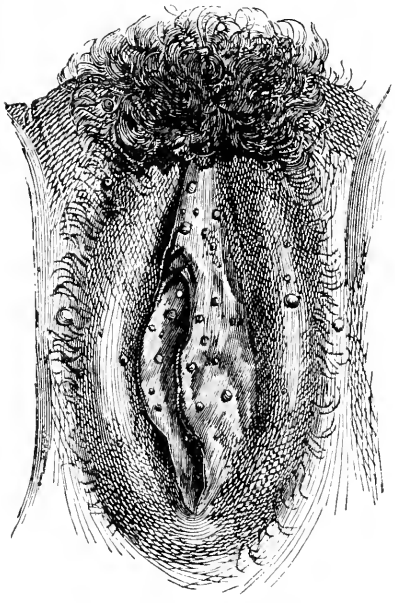

Fig. 60.—Vulvular Folliculitis.

Under the influence of summer's heat, want of cleanliness, immoderate efforts, etc., there are developed on the labia majora, principally in dark and pregnant women, little rounded prominences, of a bright red, and of the size of a pin's head, which grow discolored and fill with pus till they at length form regular pustules, which break, letting escape a quite thick pus; then the follicle closes, or it remains a little circular and superficial ulcer. This eruption is accompanied at the commencement by an excessively disagreeable pruritus which forces the patient to scratch it; later this itching gives place to a very violent burning pain, the diseased parts are congested, tumefied and become the seat of a very fetid hypersecretion. The product of the secretion dries in certain places, forms quite thick brown and yellowish crusts, and when they are lifted off, the skin of the lips appears excoriated in a greater or less extent. This follicular inflammation may extend in a trice over the greater part of the surface of the lips, take the course which we have described, and disappear to return no more; or the eruption takes place successively at different points, it has then a very slow progress, and lasts entire months; finally, the inflammation, acute in the beginning, runs rapidly through its different phases, is completely cured, but appears anew a little after; this latter form is especially met with in pregnant women, who, during their pregnancy, are sometimes affected five or six times with this disagreeable affection. Huguier, who has given a very particular attention to the diseases of the follicular apparatus of the vulva, raises the following points to draw the

distinction between vulvular folliculitis and other analogous affections. According to this author, it may easily be confounded with an herpetic eruption; but the latter is always accompanied by fever and general malaise. The vesicles of herpes are in the first place round and quite large, superficial, transparent, and almost always completely dry at the end of some hours; when they break, they leave only a very deep excoriation and without depression, their content is a serosity of a reddish or rusty brown; they never leave cicatrices. The simple ecthyma has yet more analogy with folliculitis; still it also appears ordinarily after a general uneasiness, it is never developed upon the labia minora, nor upon the internal surface of the labia majora, very rarely in the genito-crural fold and upon the superior and interior surface of the thighs; it remains limited to the clitoris and to the free border of the labia majora. Pustules of ecthyma almost always exist upon other parts of the body, at the vulva they are few in number, isolated, superficial, and larger than those due to folliculitis; the suppuration commences sooner, then there is a thick and yellow crust formed; finally, the eruption of ecthyma takes place all at once, and the follicles of the vulva have preserved their normal state. **To distinguish the follicular inflammations from syphilitic affections,** Huguier gives us the following details: Folliculitis of the vulva is frequent during pregnancy, it ordinarily appears after great efforts and venereal excess or masturbation. The primitive seat of syphilides is ordinarily the entrance of the vagina, especially the internal face of the labia minora, while folliculitis may attack all the points of the vulva; it is further characterized by the successive appearance of pustules which, after being opened, do not extend at all like venereal ulcers. For the topical treatment of this form of inflammation, we recommend tepid hip-baths and lotions, the application, by means of a brush, of astringent liquids, particularly the Goulard water, and diluted solutions of nitrate of silver; the latter are those which have done us the best service. The patient ought to preserve the most complete repose, with proper diet; we cannot decide whether purgatives are of great utility. In certain cases when the disease has been accompanied by the phenomena of chlorosis and subject to fre-

quent relapses we think that we have prevented its return by the use of iron.

3. By the analogy of their exterior form, **herpetic eruptions** approach the nearest to the affection which we have described. They are constituted by more or less numerous little vesicles, more nearly together in some parts, of the size of a pin's head to that of a pea, and transparent; they appear on the internal and external parts of the thigh and extend from thence to the neighboring parts of the vulva. These eruptions are ordinarily accompanied by fever, digestive troubles, pruritus or a burning sensation of the affected parts, a hypersecretion of the vaginal mucous membrane, vesical and rectal tenesmus; they terminate by the rupture of the vesicles, which are then transformed into superficial excoriations, which remain bare or are covered with brownish crusts. The duration of the disease is variable; in two or three weeks it may have finished its course; still it is not rare, when the eruption has occurred successively or with relapses, to see it last during many months. The herpes of the vulva, like that of other parts of the body, may be the result of a constitutional disease; so it is always necessary to have regard to this in the treatment. Among the topical remedies there are, after the requisite care for cleanliness, the astringents, and among them the diluted solutions of the nitrate of silver, which deserve the preference.

4. Under the name of **esthiomanus, herpes exedens** or **lupus of the vulva,** Guibout[1] and Huguier[2] describe a chronic affection of the vagina particularly, to which till now little attention has been paid, which has been confounded with cancer, syphilis or the elephantiasis of the Arabs. It is seen only in adult women, and destroys more or less deeply the parts which it attacks, without being accompanied by general symptoms. Three varieties of this disease exists; the **superficial esthiomanus,** which is most often seated in the clitoris, the labia majora and perineum and is characterized by the thinning of the skin, its violet discoloration and a considerable hyper-

[1] Union méd. 1847, Nos. 46-51.

[2] Mémoire sur l'esthiomène ou dartre rongeante de la région vulvo-anale. (Mémoires de l'Acad. de Méd. 1849, vol. xiv., p. 501 et seq.)

trophy of the sub-mucous and sub-cutaneous cellular tissue; the **esthiomanus perforant** which attacks the internal surface of the vulva, excites tumefactions in the affected tissues, thickenings and considerable indurations, between which are found extended ulcerations; it is accompanied by the intumescence of the inguinal glands; finally the **hypertrophic esthiomanus,** which is distinguished by numerous indurated tumors seated in the sub-cutaneous cellular tissue, which is itself thickened, and, so to speak, fibrous. The labia form hard and irregular tumors, at the base of which it is not rare to observe excoriations; sometimes there is joined to it a considerable œdema; the inguinal glands are then tumefied. The contraction of the vagina and rectum is the natural consequence of these infiltrations into the cellular tissue, which sometimes extend quite high into the pelvis. All these alterations are not generally accompanied with pain; when they are not too considerable, they do not trouble the patients in moving. They may for a long time preserve the appearance of fine health; still these affections become very disagreeable by the compression of the vagina and rectum, and may be the source of all sorts of torments by causing rectal and recto-vaginal fistulas, which especially take place in the perforating form. The several varieties of esthiomanus may be easily confounded with syphilitic affections; the superficial form has its analogy with papulous syphilide; still this latter never causes thickening and induration of the sub-cutaneous cellular tissue, the rosy redness never extends so uniformly over a large surface, it is more coppery, and is not limited to the vulva only, but also covers the adjacent parts. In the hypertrophic form the tubercles are large, extended, purple, resting on a pale, indurated, fibrous surface; the neighboring parts have lost their color and their normal consistence; they are pale, dry, hard and more projecting. The syphilitic tubercles have less extent; they have, as well as the surface which serves for their base, a rosy redness—the latter is much hardened, but the induration never extends to the neighboring tissues, which preserve all their anatomical characteristics. The perforating form has its analogy with phagædenic ulcers; but the latter ordinarily commence in the neighborhood of the vulva, in the fold of the groin or on the thighs, and slowly reach the

genital parts. They have callous borders of a coppery red, the bottom is granular, rude and angular; they secrete a great deal of pus and are covered with crusts. The ulcer of the esthiomanus, on the contrary, has sharp cut edges, it is smooth, as if lined with epithelium, never secretes pus, but only a serous liquid, which never forms scabs. The hypertrophic form has also been confounded with condylomata and syphilitic mucous tubercles; but these are always isolated from the surface upon which they are located; many of them often have but a single common pedicle, and the tissues upon which they are grown are not altered, while in the hypertrophic esthiomanus, the skin is tumefied, hypertrophied and excoriated. The cancerous infiltrations are much harder, they form a thick and circumscribed mass, which gives the impression of a foreign body; the ulcers have projecting and inverted borders, they easily bleed, secrete a puriform sanies, are the seat of violent lancinating pains, and are accompanied by a more or less marked general affection. The simple hypertrophy of the vulva shows only an excess of the development of the tissues which have in other respects preserved their normal texture and their physiological properties. The minutest care for cleanliness, and the topical and internal employment of iodine and its preparations can cure the esthiomanus of not long standing, while, when this affection is very extended, it may, by its abundant secretion, alter the constitution of the patient, and produce, if not death, at least a long marasmus.

5. **Eczema of the vulva,** the appearance of which does not differ at all from the eczematous eruptions of other parts of the skin, is one of the exanthemata which most frequently attack the external surface of the labia majora. It has an acute progress terminated by cure at the end of some weeks, or it is chronic, and the eruptions succeed one another, frequently coming and going. In some women they appear habitually, although slight, at each menstruation, and not only inconvenience them by the troublesome pruritus which they occasion and which forces the patient to scratch herself, but also from the considerable tumefaction and excoriation of the diseased parts which so often accompanies them. They can even, when there is a long duration, and when they attain an

elevated degree, by the continued insomnias and irritation, provoke disturbances of nutrition, the weakening of the forces and all the phenomena of chlorosis and hysteria. In our experience it has yielded most rapidly to the use of hip baths and cold lotions repeated many times a day, and to the application upon the diseased parts of a solution of five parts of caustic potash in seventy parts of water.

6. **Prurigo,** which is often confounded with pruritus, is characterized by papulæ ordinarily quite large and isolated, which when they are scratched, which almost always occurs, are covered with clots of blood, and give to the part a disgusting appearance. The treatment consists in astringent lotions, applications upon the diseased parts of a solution of caustic potash or nitrate of silver.

7. **Sub-cutaneous phlegmon** of the labia majora is ordinarily due to the injurious action of exterior causes, as for example, of a violent blow, the too frequent or too brutal repetition of coitus, etc. It is upon this portion of the body in particular that the purulent nidus rapidly extends, on account of the laxity of the sub-cutaneous cellular tissue, and opens but very slowly a passage exteriorly through the skin, relatively very thick in these parts. So soon as we are assured that suppuration has commenced it will be well immediately to open the abscess.

8. Another form of inflammation of the cellular sub-cutaneous tissue, is that constituted by the formation of circumscribed **furuncles.** Their frequency in certain women constitutes their importance. We have observed them in subjects affected with a general disposition to furuncles, in chlorotic women and those suffering from difficulties in the circulatory apparatus of the pelvis. The minute care for cleanliness, salt water baths, and the use, as a drink, of the mineral waters of Kreuzbrunnen[1] or of Rakotski[2] continued during several weeks, are the surest means of preventing these painful inflammations. In the chlorotic, it is necessary to add ferruginous preparations.

[1] One of the mineral springs of Marienbad in Bohemia; this water contains sulphate of soda, chlorate of sodium, carbonate of soda and carbonate of iron dissolved in carbonic acid.

[2] One of the numerous mineral springs of Kissengen in Bavaria, particularly rich in metallic chlorides, sulphate of soda, iron, and carbonic acid.

9. The labia majora may also be the seat of very deep **abscesses**, and extending quite far. They are frequently observed in consequence of traumatic lesions, especially those which may have occurred during accouchement. In these cases, it is often a bloody extravasation which is the cause of the suppuration; after having existed for a longer or shorter time, it excites an exudation into the adjacent cellular tissue; the exuded matters do not delay being transformed into pus or sanies, and break away exteriorly; they are then mingled with blood, partly liquid and partly coagulated.

10. Independently of the puerperal state and traumatic causes in general, abscesses of the labia majora are sometimes due to an **inflammation of the vulvo-vaginal glands of Bartholin.** We know that these organs are situated on both sides of the entrance of the vagina under the skin of the inferior portion of the labia majora; they are surrounded by a thick but slightly dense layer of cellular tissue, and are about a third of an inch to an inch in length, and of a thickness of a line and a half to two lines and a quarter. They are grape-like glands with an excretory canal of from six to ten lines in length, covered by the constrictor muscle, directed horizontally behind the labia majora, forward and inward, and opening laterally within the labia minora in the vestibule of the vagina. The **acute inflammation** of this gland ordinarily occurs but upon one side; it is characterized by the formation of a tumor of the size of a beech nut to that of a pigeon's egg, seated at the posterior and external part of the labia majora, hard and very painful to the touch; the skin, at least during the first days, does not lose its normal color. The diseased lip appears elongated downward on account of the presence of the tumor; little by little it reddens, tumefies and becomes the seat of a burning or lancinating pain, which radiates toward the tuberosities of the ischium, the urethra and anus, much augmented at every movement, particularly during urinating and defecation. It is not until the sixth or the seventh day that fluctuation is observed about the middle of the tumor. The pus ordinarily opens a way upon the internal surface of the lip, rarely by the excretory canal. In introducing a sound into the cavity of the abscess, we may be assured that the walls are not smooth, but rough, and so

to speak, granular. Huguier,[1] to whom we owe the most detailed accounts of the diseases of this organ, admits two forms of abscess; in the one the pus forms in the glandular tissue itself, in the other, in the cellular tissue, situated in the borders of the labia; in the latter case it forms little granular foci. **The inflammation of the excretory canal of the gland of Bartholin** often exists alone without the gland itself participating therein. It ordinarily appears due to the obliteration of the opening of the canal, either by the accumulation of the product of the secretion or by the vaginal mucus which remains there adherent. The flow no longer occurring, the conduit dilates considerably and forms a soft fluctuating tumor of the size of an almond or a filbert. The accumulation of matters secreted provokes a circumscribed inflammation in the walls of the canal and the connective tissue, which terminates by suppuration; the labia minora swell and thicken in its lower third. At the end of from two to four days the pus escapes either by the opening of the conduit, or at some other point of the internal surface of the labia minora. So soon as the opening of the canal is again permeable, a slight compression upon the tumor will suffice to empty the pus accumulated in the conduit. This opening may sometimes be considerably dilated when the mucous membrane of the labia minora is strongly stretched, so that even a superficial inspection may easily recognize it. When the pus has escaped, the tumor insensibly diminishes, it is less fluctuating and less painful, and later there flows from it only a mucous liquid. The following description may serve to distinguish abscess of the vaginal gland from that of the excretory duct. The first are ordinarily more voluminous and seated lower toward the inferior extremity of the labia majora; the second are found in the substance itself of the labia minora, the first are more superficial, more painful, and quite often accompanied by fever, fluctuation is declared later, the labia majora appear elongated downward, while in the abscess of the conduit the diseased labium is thicker but shorter than the other. The cavity of the glandular abscess, opened with the bistoury, is

[1] Mémoire sur les maladies des appareils sécréteurs des organes génitaux externes de la femme. (Mémoires de l'Acad. de méd. Paris, 1850, vol. xv., p. 526 *et seq.*

uneven, rough, of a bright red color and often bloody; that of the abscess of the canal, on the contrary, is smooth, shining, and is as if lined with a mucous membrane. After the cure of the former, there remains a hard body formed by the engorgement of the glandular tissue, which is never the case in the second. The pus in the abscess of the gland does not escape except occasionally by the excretory canal, while this is the rule in the other form. The inflammations and abscess on which we are now engaged, ordinarily are developed, according to the observations of Huguier, in consequence of venereal excess, great fatigue after forced marches, in vaginal catarrh, and under the influence of a too violent congestion of the genital organs. In certain women these affections often return; it is especially among public women that we have made this observation. At the commencement we may employ topical antiphlogistics, such as tepid hip baths, or five or six leeches applied over the tumor. When the suppuration has commenced, it should be opened as soon as possible. In abscess of the excretory duct, Huguier advises dilating the opening by means of a sound and pressing out the pus from the tumor. Up to the present this has not succeeded with us, so we prefer opening the abscess by an incision of two to five lines, performed upon the internal surface of the labia majora, near the place where it unites with the labia minora. When there are frequent relapses, as well as when we are assured that the secretory duct is obliterated, we should, according to the advice of Huguier, open the abscess by a large incision.

11. Among the inflammatory affections of the labia majora, we should also reckon upon **œdema**, which, particularly during the puerperal state, but also out of this condition, is united with deep abscesses or with hæmorrhagic effusions, determines a considerable tumefaction of the labia, and is distinguished from mere inflammatory œdema, that is especially observed in pregnant women, in that the diseased part is the seat of very violent pains, which become insupportable upon the least touch. The diseased lip is of a lively or livid red, and shows at the same time a considerable augmentation of temperature. In carefully palpating, we almost always come to the discovery, ordinarily in the inferior part of the lip, of a harder and more particularly

painful swelling, which, little by little increases, becomes more superficial, and soon evinces a fluctuation, and at length finishes by breaking, allowing pus or a melange of pus and blood to flow out. During the puerperal state, this inflammatory œdema is declared after difficult artificial confinements, or it accompanies the septic form of puerperal fever. In the latter case it often terminates by the gangrenous destruction of a great part of the lip and the neighboring tissues. The treatment ought always to have for its first aim to make the abscess which is formed in the depth of the labia arrive, as soon as posble, at maturity; then, so soon as suppuration is established, to incise through the internal surface. After that, if there is no general disease, the œdema ordinarily disappears at the end of a few days.

12. **Gangrene of the labia majora** requires, beside the general treatment directed against the constitutional disease, repeated lotions with tepid water, with diluted solutions of chloride of lime, or infusions of aromatic herbs, and the application, by means of a brush, of balsam of Peru, camphorated liniment, etc., in a word the use of the medicaments which are employed against gangrene in other parts of the body.

B.—*The Labia Minora.*

1. The **catarrhal inflammation of the nymphæ,** with more or less abundant secretion of their mucous membrane, is isolated or connected with an analogous affection of the inferior part of the vagina; its course may be either acute or chronic. When it exists by itself alone it is ordinarily due to uncleanliness and to the accumulation of the cheesy mucus secreted by the labia majora; it has also been observed after the brutal or too frequent satisfaction of venereal desires, and in women given to masturbation; according to some authors, it will sometimes be occasioned by ascarides proceeding from the rectum. We have already said that it may complicate acute or chronic catarrh of the vagina; experience also teaches that it frequently accompanies the various inflammatory affections of the labia majora, which we have described in the preceding chapter. The inflamed nymphæ ordinarily appear a little tumefied, or of a very lively red, their mucous follicles often project in the form

of little papulæ of the size of a pin's head of a brighter or yellowish red. The diseased parts are very sensitive to the touch, and are also the seat of a spontaneous sensation of heat or pain. The mucous membrane of the urethra often participating in the inflammation, there is frequently difficulty in urinating. For **treatment,** we should always have regard to complications of the disease, to vaginal catarrh, affections of the labia majora, etc.; it often happens in curing the latter that the inflammation of the nymphæ is made to disappear. Still we may also act directly by a great deal of care in cleanliness, lotions and tepid hip baths. When the disease is acute, the tumefaction considerable, and the sensibility very great, it is sometimes necessary to employ local blood-lettings, fomentations and lotions with Goulard water; on the contrary, when the progress is more chronic, we may apply with the brush, astringent substances, and in particular a weak solution of nitrate of silver; compresses and cold hip baths have sometimes great success.

2. The **croupy inflammation** of the labia minora is declared in consequence of traumatic lesions, such as take place from violation, masturbation, etc., or it is due to the prolonged action of irritating liquids, as is the case in urinary and stercoraceous fistulas of the vagina. The labia minora are tumefied, especially upon their free border, are of a bright red, sprinkled with large papillæ; they are excoriated, bloody in some parts, and covered to a variable extent with a quite thick layer of a fibrinous or reddish exudation. The inflammation ordinarily extends also to the inferior part of the vagina, to the internal surface of the labia majora, to the meatus urinarius and the neighboring parts, which especially augments the sufferings of the patients in such a manner that the least movement is rendered insupportable by the violent pains which it excites. The treatment consists in the first place in removing the cause of the disease, then in the employment of washes, fomentations, and tepid hip-baths, to which may be added, when there is much pain, some emollient or narcotic medicament.

3. The **inflammation of the numerous sebaceous glands** of the labia minora is manifested by the redness, tumefaction, sensibility of these parts; then by the presence of little, rounded,

red protuberances in the form of papulæ, of the size of a pin's head, and by an abundant, fetid, puriform secretion. As this affection is in no respect distinguished, either in progress or treatment, from the folliculitis of the labia majora, we refer the reader thereto, to avoid useless repetitions.

4. **Œdema of the nymphæ** is most often met with during pregnancy; yet it is also observed out of this state in consequence of catarrhal or croupy inflammations of the vulva, during the course of exanthemata of these parts, and in the various abscesses of the labia majora. So soon as the causes no longer act, it promptly yields to repose and the tonic application of dry heat.

5. **Abscesses** of the labia minora are rare; they are declared in consequence of traumatic lesions determining a sanguineous extravasation into the substance of the labia, or during the course of inflammation of the excretory duct of the vulvo-vaginal gland. They ordinarily open upon the internal surface of the lip. We have already spoken above of abscess of the excretory duct of the gland of Bartholin.

§ 6. *Solutions of Continuity.*

We do not treat here of the lesions occasioned by the action of exterior causes, such as cutting or piercing bodies, a fall, a blow, etc.; they belong to the domain of surgery proper. We will examine but two varieties of the solutions of continuity of the vulva, which are ordinarily in relation with the sexual functions of woman, and cannot in a work of this character be passed by in silence; these are ruptures of the perineum, which ordinarily take place only during confinement, and the **sanguineous tumors** or **thrombus** due to an effusion of blood into the labia.

A.—*Ruptures of the Perineum.*

Among the lesions which are designated by the name of perineal rupture, we must distinguish two different forms: central rupture, when the perineum is torn in the space situated between the posterior commissure of the labia and the anus, without the solution of continuity extending either to the vulva

or the rectum; and the vulvo-perineal rupture, in which the rupture starts from the posterior commissure and continues more or less toward the anus, or even involves the rectum. It is well known that the perineum, at the moment of the passage of the fœtus through the vulva, undergoes a considerable dilatation and thinning; so that every cause tending to increase the tension of this barrier to diminish the elasticity and the extensibility of the vulva, can lead to a rupture. Although the enumeration of these **causes** belongs to the province of the art of midwifery, we will yet say, in a few words, that, when the sacrum is very little bent, so that its point is found very far backward, the part upon which the fœtus presents is less pushed in front against the vulva than directly upon the perineum; for in these cases the inferior extremity of the axis of the pelvis being farther back, it results that the plane which should direct the head of the child under the symphysis pubis has undergone a diminution in its inclination. An abnormal height of the symphysis, and a considerable retraction of the pubic arch may occasion the same accidents; these two anomalies especially predispose to central ruptures. It is the same with all positions of the head in which a voluminous part of the head is pressed for a long time against the perineum without the power of passing the vulva. Finally, the **narrowness of the vulva** has also a great importance; it may be produced naturally or artificially by the badly directed support of the perineum. When the narrowness is so considerable as not to allow but a small portion of the region of the fœtus which presents to pass between the labia, this is retained until the moment of passing the vulva; while at the same time the energetic contractions tend to push it forward, it ought then necessarily follow the direction resulting from these two forces, and to tear away through the perineum. On the contrary, the rupture starts from the posterior commissure of the labia, when a great portion of the head has already passed the vulva, and which cannot sustain this maximum of dilatation. The contractions of the strait of the vagina may be either congenital or it may be due to a pathological cicatricial tissue.

Ordinarily it is the raphé which yields first, then the tear is continued longitudinally, or the perineum is divided into many

strips; it is rare that it is simply transversal. Sometimes it is divided into two arms, which following the direction of the muscular fibres of the sphincter, surround the anus in a Y shape. The extent of the perforation may be so considerable as to permit the passage of the child without either the anal or vaginal sphincters participating in the rupture. In other cases, when the tissues of the perineum are less extensible, the tear, primitively central, extends even to the vulva and to the rectum, and then constitutes secondarily a vulvo-anal rupture.

The perineal ruptures which take their departure from the posterior commissure of the labia may have, as to their extent, three different degrees. The slightest ruptures interest only the fold of the mucous membrane which unites the two labia—the commissure—without penetrating into the substance proper of the perineum. They are especially observed in primipara, they offer no danger. In the second degree, the rupture extends upon the median line to the circular fibres of the external sphincter of the anus; sometimes it happens that the skin and the sub-cutaneous cellular tissue are torn from the labial commissure quite to the anus, but the finger introduced into the wound meets with no lesion of the sphincter muscle. These incomplete perineal ruptures ordinarily follow the median line; it is quite rare that they divide or separate into two Y shaped arms; the lips of the wound are partly united and smooth, partly rough and torn. The third degree comprises the complete ruptures which traverse the entire perineum with the anal sphincter, and even penetrate into the cellular tissue which fills the recto-vaginal excavation. All these various ruptures are most often formed at the moment of the passage of the head of the child, more rarely when the breech or the shoulders pass the vulva; it is needless to add that the narrowness, the want of elasticity in the vulva, and the violent contractions when the passages are still little prepared, may also be the cause of ruptures. It is the same when the anomalies of the pelvis which we have mentioned in speaking of central ruptures are slightly pronounced, in such a manner as to push the head of the child more against the anterior part of the perineum. It is also known that this accident can be produced by imprudent or

badly directed traction exerted upon the head with the forceps, or upon the body with the hands.

The **rupture of the frænum of the labia** and of the anterior part of the perineum to an extent of from four lines to half an inch, but rarely heals, if left to itself, in a complete manner. Still this is not an unfortunate accident for the woman either during the labor or afterward. Those which penetrate further, sparing, however, the anal sphincter, are also cured excessively rarely by the first intention; the most often, the borders of the wound suppurate, are clothed with a tegumentary membrane, and there is only the posterior extremity of the rupture which reunites. It results that, after the cicatrization, the labia majora are drawn backward, are less projecting and nearer approached to the anal orifice. In the very extended ruptures, it often happens that after the cicatrization even when the sphincter has not been torn, the vulva forms with the anus but a single groove; the sphincter drawn by the cicatricial tissue forward and downward escapes, at least in part, from the will of the patient, so that later nothing is opposed to the involuntary issue of the intestinal gas and even to liquid fecal matters. It is still rarer that the complete ruptures of the perineum penetrating more or less deeply into the rectum, are cured so completely as not to become the source of all sorts of torments for the unfortunate afflicted patient. The wound is ordinarily transformed into a callous groove, which uniting the vulva with the anus constitutes an irregularly shaped cloaca from which flow the urine, the uterine and vaginal mucus, the menstrual blood, intestinal gas and fecal matters. Later this disgusting infirmity may be still more complicated by the procidence of the posterior wall of the vagina and the anterior of the rectum, prolapse of the uterus with all the series of phenomena which accompany these displacements.

For the prophylaxis of perineal ruptures we will refer the reader to treatises upon the art of midwifery;[1] we will only add that we know but a single method of preventing this unfortunate accident, it is the unbridling the vulva, which consists, at the moment of the passage of the head of the child, in mak-

[1] M. Chailly has given excellent advice in his practical treatise on the art of midwifery.

ing two incisions from four to six lines toward the posterior border of the vulva, a procedure which we have put to the proof more than one hundred times, and which we have described in detail in our *Traité des accouchements* (3d ed., p. 712).

If notwithstanding this preventive measure the perineum yields, in the first place, we should regard the depth of the rupture. The tear of the posterior commissure and simple chafings of the anterior part of the perineum do not require any chirurgical treatment, because that even if there shall be no complete cure, there will no unfortunate result follow. But in the deeper ruptures, especially when they extend into the rectum, it is indispensable to close the wound by suture. The operation ought to be made immediately after the accouchement, because there is then more chance that the still bleeding lips of the wound will reunite, the more as the freshening not being necessary, the chirurgical operation is more simple and less serious. Generally we employ the simple interrupted suture; and it is only in very extended ruptures with irregular borders, and when the excision of the latter is the cause of a considerable loss of substance, that we have recourse to twisted sutures. We shall rarely need more than four points of suture, and we should be careful to pass the needles at from at least four to six lines from the borders of the wound, for it is only by embracing a great thickness of tissue that the threads can maintain them in the intimate contact that their immediate reunion demands. After having performed the suture, the greatest care for cleanliness should be observed, lotions and injections should be used many times a day, and absolute repose, lying upon the side, should be stringently ordered to the patient. When the borders are irregular, sinuous, it is unnecessary to say that the strips ought to be excised before the reunion, by the use of scissors or bistoury. If there is a deep division of the rectum we should reunite it, before the perineal wound, by means of fine needles and simple threads; to place them we have once been obliged to employ a porte-aiguille *ad hoc*. It may also happen that after the reunion of the greater part of the rupture there remains a greater or less communication between the rectum and the vagina; to obtain complete occlusion, we should have recourse to the procedure which we have de-

scribed in speaking of recto-vaginal fistulas. Hoogeweg, Veit, and others advise for the reunion of perineal ruptures, the *serres-fines* of Vidal; after many trials of these instruments we cannot recommend them, for many times we have had opportunity to be convinced that this procedure is little sure and very painful. The reunion of the lips of the wound being very often disturbed by the action of the muscles of the perineum. J. B. Brown has proposed making a sub-cutaneous section of the sphincter ani at the place of the insertion of the sacrum; we but mention this proposition without giving any judgment, for since we have known it, we have not had a perineal rupture to treat which would compel so grave an operation.

For old cicatrized ruptures we cannot too highly recommend the **procedure proposed by J. B. Brown**, which has with us completely succeeded in a case despaired of. The first portion of the operation consists in freshening the borders of the solution of continuity; it is necessary to excise not only all the cicatricial tissue but also to peel off the superficial layer of skin above the cicatrix and in the vagina. Brown commences by the vagina, the walls of which he freshens to an extent of an inch, then he proceeds to the rectum, cutting the perineum three lines beyond the cicatrix. When the vagina and rectum participate in the rupture, it is also necessary to freshen their borders covered with mucous membrane. The second part consists in uniting the wound, or rather in transforming the bleeding surface into a deep linear wound. For this purpose, Brown commences by a very deep suture; the needle pierces through the healthy skin, and embracing all the thickness of the tissues, it reappears near the raphé, and passes above to pierce in the same manner but in the opposite direction the other freshened border. The thread ought to be very strong and double. The first point is placed near the rectum, without, however, piercing this organ or its walls, then as many others as the extent of the rupture demands, leaving between each point an interval of nearly four lines. After the threads are all placed, on both sides, along the bleeding surface a bit of elastic bougie of small size is placed, upon which the threads are tied, forming thus a quilled suture. Between each of these points of the deep suture a stitch of simple suture is superficially placed. The

third portion consists in introducing into the rectum the index and middle fingers well oiled, and after having separated them and by this means stretched the sphincter, the section of this muscle is made outward and backward, to the side of the coccyx. After the operation, the patient is put to bed and placed in such a manner that the thighs rest close to one another and bent upon the belly.

To conclude, we will also mention the procedure which Langenbeck has contrived and executed many times with success; it is the **perineosynthesis.** After having introduced the first two fingers of the left hand into the rectum, the parts are stretched transversely and with the scissors a very narrow band is excised extending over the whole thickness of the recto-vaginal partition; then upon the anterior surface of this partition an incision is made, semilunar or with an obtuse angle, the convexity of which is distant 2 lines and a half to 4 lines from the lower border of the partition. The incision extends only to the mucous membrane. The superior lip is seized with the forceps, and it is carefully dissected from the subjacent cellular tissue to an extent of nearly six lines over the whole breadth of the partition. The latter is then divided into two flaps, an anterior vaginal and a posterior rectal. The rectal flap remains placed and serves for the reunion of the rectum, the anterior is brought forward and fixed on both sides, by its angles, to the anterior part of the new perineum. For this end, with the aid of a little scalpel, upon the internal surface of each lip a quadrilateral space is circumscribed sparing above the whole vaginal mucous membrane and below the external tegument. In front, the incision should commence where in the normal state the posterior commissure of the vagina is found; behind, the two sides should be confounded in the freshened partition. This quadrilateral space ought to be an inch and a half long by three-quarters of an inch broad. One of its borders is then seized with the forceps, and a very thin strip is excised with scissors or bistoury. After having arrested the hæmorrhage, we proceed to the application of the suture, which should unite the rectum. A bent needle with a double thread is introduced by means of a porte-aiguille to the left of the anterior rectal border, at a distance of 5 to 6 lines from the external border of the

wound, so that it comes out about two inches from the median line of the body. It is again entered upon the right border at an equal distance from the median line, to make it reappear to the right, at a point corresponding to the point of entrance on the left. In drawing a little upon the thread, it will be perceived that the border of the partition leaves its transversal position, and is folded in two equal parts, which touch upon the median line in the freshened border. The thread thus stretched is given to an assistant, and the operator passes to the suture which should reunite the perineum. Three or four points of simple suture are necessary; the needles of Wutzer are those which are the best for this part of the operation. We commence by the part nearest to the anus, leaving between each thread an interval of nearly four lines. The needles are planted at a distance of half an inch from the borders of the division, embracing the bottom of the wound, and should spare the mucous membrane; they should reappear on the other side corresponding to the place of entrance. Very long needles have the advantage of being able to penetrate with a single thrust the whole thickness of the tissue which it is desired to pierce. After having in this manner placed all the threads, the operator, before tying them, ought to employ himself in fixing the flap which he has dissected from the mucous membrane. He takes little bent needles, threaded with simple thread; two or three points of suture will suffice for each side. It is then that the advantage of the division of the partition is perceived in the formation of the flap of a single tissue; for once fixed, as we have said, it constitutes a plane inclined downward and forward, which covers the important parts, at the same time compels the products of the vaginal secretion to flow toward the vulva, and protects by their contact the parts freshly united. In other terms, the flap forms the anterior part of the triangular space which in the normal state represents the perineum. After that, it only remains to tie the threads, commencing by the one nearest the rectum. To diminish the tension of the tissues, an incision in form of a crescent is made upon each side, at about three-fourths of an inch from the points of the suture. Immediately after the operation, and during the first following days, the perineum should be covered with cold compresses, intra-vaginal injec-

tions made with chamomile tea, and the bladder emptied with the catheter; at the same time a rigid diet should be ordered to retard the stools as much as possible. The fourth day we may commence to withdraw the threads one after the other, so that by the end of the week they may be all removed, after which fomentations with Goulard water may be made upon the wound. [This operation is much simplified, and will be found to be more effectual by using the simple twisted silver suture in the place of the various sutures above recommended.]

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B.—*Sanguineous Tumors.*

Causes.—Blood tumors or **thrombus** of the vulva and the vagina are immediately caused by the rupture of some of the vessels, ordinarily one of the veins contained in the substance of these organs, from whence there results a bloody effusion into the slightly dense cellular tissue of the great and small labia, into the vaginal wall and into the conjunctive tissue surrounding. In the empty state of the uterus, these extravasations are not formed, according to our observations, except by the intervention of some violence, as, for example, a fall upon the seat, a severe blow upon the vulva, etc.; but in pregnant women they more frequently take place spontaneously; the circulatory troubles and the dilatation of the pelvic vessels which accompany pregnancy, favor their formation. But oftenest they are observed during and immediately after labor, which is easy to conceive, for the passage of the head of the child through the vagina and the vulva is always accompanied by a forced distention and considerable dilatation of the soft parts, so it is not

rare to meet at the cadaveric opening of women dead shortly after labor, with quite considerable blood effusions under the mucous membrane of the genital parts, and in the cellular tissue, which unites them with the adjacent organs. It is without doubt that in these circumstances the arterial vessels may also break, and thus determine a blood effusion; still, as the rupture of the superficial veins is often observed during the labor; while in the majority of cases the thrombus is connected with a varicose state of the nervous system of the genital parts, and these vessels are gorged with blood during the pregnancy, it is very reasonable to admit that at least the most voluminous of these tumors are due to the rupture of one or more venous trunks. When the solution of continuity interests the vessel only, the blood can only dribble slowly by rupture and infiltrate into the cellular tissue, which explains why the thrombus does not sometimes develop till long after the expulsion of the child, and ordinarily during the exit of the after-birth. The blood, on the contrary, may be effused much more freely, and the rapid formation of a voluminous tumor be favored when, with the wall of the vessel, the adjacent cellular tissue is divided to a great extent; still, even in these cases, it may happen that the thrombus develops but slowly, when the torn vessel is still compressed by the head of the child, retained in the pelvis, or, what is not rare, when the rupture of a deep vein is accompanied by the tearing of the mucous membrane and the subjacent tissues, in such a manner that the blood may flow freely to the exterior, which in part prevents the infiltration of the cellular tissue of the vagina and the labia. These blood tumors are often developed in consequence of the long and laborious application of the forceps; they also frequently accompany the complete ruptures of the womb and the vagina. The thrombus occasioned in the vacant state of the uterus, by the action of an external violence, is ordinarily formed immediately after the cause has acted, but it rarely attains the volume of those which are formed during labor, and almost always remains limited to the vulva.

Symptoms.—The **diagnosis of blood-tumors** generally presents no difficulty, for the simple reason that they ordinarily extend quite to the labia, and are soon recognized by the

patient herself or by the persons summoned. The formation of the tumor, during labor, is sometimes, but not always, accompanied by pains, while in women who are not pregnant, the lip, tumefied in consequence of lesion, is ordinarily the seat of a more or less intense pain. The mucous membrane which covers the thrombus is more or less thinned, smooth and shining, according to the degree of dilatation to which it has been submitted; the blood accumulates below it and causes it to appear bluish or blackish. When the blood is infiltrated into the meshes of the cellular tissue, where it is already completely coagulated, the tumor is very compact, doughy; it is on the contrary soft and fluctuating, when a single cavity contains the still liquid blood. With non-pregnant women it sometimes happens that, notwithstanding the presence of a little blood-effusion of the size of a filbert or a nut, in the substance of the labium majus, the surface of this organ does not appear colored differently, at least during the first hours which follow the formation of the thrombus; the labium has only augmented in volume; it is the seat of quite lively pains, and allows a hard kernel to be perceived very deeply seated. When the infiltration extends to the anterior wall of the vagina, as often happens after labor, by the compression which it exerts upon the urethra and bladder, it frequently causes an obstinate retention of urine which is with difficulty made to disappear, even with the aid of the catheter, for its passage by the contracted urethra is not easily effected or occasions great pain. When to the thrombus there is united a solution of the continuity of the superficial layers of the vagina, there is always a hæmorrhage, and it is this which provokes an exact exploration when the infiltration does not extend to the vulva. So soon as this exploration is performed, it is scarcely possible to confound the tumors which occupy our attention with the other diseases of the genital parts; for simple œdema, hernias, abscesses of the labia are accompanied from their beginning or during their progress with phenomena which leave no doubt of their nature.

Prognosis.—The small blood-effusions independent of the puerperal state often insensibly disappear without leaving any trace of their presence. The more abundant extravasations,

on the contrary, ordinarily excite all around their blood focus, an inflammation, then an exudation which soon becomes purulent, so that in general, at the end of five or six days, a spontaneous flow of blood, mixed with pus, has already taken place on the internal surface of the labia. In some quite rare cases it happens that the blood clots are encysted by the exudation, which is one of the causes of the formation of cysts or fibrous neoplasmata in the substance of the labia majora. We had once the opportunity of observing a case of this character. A woman had received a kick in the region of the vulva; in consequence of this violence, a bloody effusion was formed in the left lip of the size of a nut, which, at the end of six months, was formed into an entirely firm and indolent tumor. In the course of a pregnancy consecutive to the accident, this tumor attained the size of a man's fist, and we extirpated it after the accouchement. An anatomical examination showed with certainty a fibroid with large fibres, little rich in vessels. Sanguineous tumors, which are formed during or after parturition, ought always to be considered as a very serious accident so soon as they have attained a certain size. The **dangers** come less from the hæmorrhage than from the putrid decomposition of the sanguineous collection, which determines the formation of an extended abscess, of purulent infiltration, thrombus in the neighboring veins, and pyæmia. We must especially fear this unhappy termination when a great quantity of blood is effused, while at the time an issue has not been given exteriorily. Before determining the prognosis it is necessary, further, to have a care to the external hæmorrhage which often accompanies that which takes place in the cellular tissue; it is especially dangerous when the rupture of the vaginal mucous membrane is found over the tumor itself, for then there may be a very considerable loss of blood, because a clot can be less easily formed to obstruct the torn vessel. Finally, we also know cases where death supervened because the tumor had been too soon opened, where it had broken itself a little after labor, and where the hæmorrhage was not able to be overcome.

Treatment.—When the physician is called during, or immediately after the formation of the blood-tumor, his first duty is to put a stop to the extravasation of blood; iced compresses

over the diseased part appear to us best to fulfill this end. When we treat a non-pregnant female, and the tumor shows no tendency to increase, but when in return there exist the phenomena of inflammation of the cellular tissue which surrounds the sanguineous nidus, the formation of an abscess not being able to be prevented, it is best to hasten this by the application of emollient cataplasmata; so soon as the fluctuation is apparent in a point of the tumor, puncture should be performed, and after the flow of the pus the cavity will generally close. For the blood tumors which form during or after labor, we also think that the prompt evacuation of the cavity containing the blood is the best means of preventing a suppuration of long duration, which otherwise is inevitable, for it is certainly very rare that a blood effusion of any considerable amount is entirely absorbed; this fortunate termination being observed only in the cases of tumors of little volume. When the thrombus is formed during labor, it is necessary to proceed immediately to the extraction of the fœtus; for the details of the operations which may become necessary in these cases, we refer the reader to our *Treatise on Accouchements* (3d, edit., p. 544). Immediately after the delivery, as well as when the thrombus is formed only at the expulsion of the placenta, or later, it is requisite to prevent the augmentation by injections of cold water; by the introduction of pieces of ice into the vagina; and if that is not sufficient, by the compression of the vaginal wall tending to tumefy, by means of compresses wet with iced water; and finally by the application of the solid tampon. It is not necessary to employ the latter means until after the expulsion of the placenta when we are sure that the uterus contracts. So long as the volume of the tumor increases, it is necessary to be careful in opening it, for it might happen that one might not be able to overcome the hæmorrhage. Hence we should wait some hours, during which we may apply the hæmostatics which we are about to name, before proceeding to puncture. This operation we practise with an ordinary pointed bistoury; then with the finger we should remove from the cavity all the clots which it contains; the hæmorrhage, which often reappears in great abundance, should be combated with injections of cold water into the cavity of the tumor,

then ice, or a vessel filled with cold water, should again be introduced into the vagina, and left to remain there for six or eight hours, according to the more or less probability of the return of the hæmorrhage. If immediately after the incision a too great loss of blood is manifested to be controlled by the injections of iced water, there remains nothing to be done but to fill the cavity with balls of lint dipped into iced water, or an astringent liquid, and to tampon the vagina firmly. If the tumor has spontaneously broken, and if we cannot moderate the effusion of blood through the rupture, and if at the same time this is too narrow to permit the tamponing of the cavity, it will be necessary to previously dilate the cavity in a sufficient manner. The rest of the treatment is limited to moderating the inflammatory symptoms, and to removing the dangers resulting from the suppuration or decomposition of the tissues.

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§ 7. *Neoplasmata of the Vulva.*

A.—*Fibrous Tumors.*

The labia majora are especially the seat of fibrous tumors; in certain cases, they have been observed on the perineum. Sometimes they do not appear at the vulva until they have run over quite a long tract, their point of development being situated deeply in the pelvis. When they are found in the thickness of the labia majora, the elasticity and distensibility of the tissues of these organs permit them to attain a considerable size; their weight distends the labium, and lengthens it in such a manner that it may descend more or less low down. In 1854, we extir-

pated at our clinic of accouchements a fibrous body of the left lip, of the size of the fist of an adult man; it descended to the middle of the right thigh. In all the cases which we have observed, the skin which covered the tumor was perfectly normal, the patients did not complain of any pain except a sensation of weight and tension at the diseased part. Still, very heavy and very voluminous fibroids have been seen accompanied with ulcerations of the skin of the lip; in these cases, it may happen that the tumor itself is inflamed, softens and becomes the seat of an ulcerative change producing an abundant sanies. In the fibrous tumors of the labia, as in those of the uterus, there may sometimes be formed cavities, or cysts filled with a liquid either bloody, or clear as water, and of variable consistence; it is especially the case when they are voluminous; this particularity of structure appears even to be the cause of their rapid development.

The **etiology** of these tumors is still very obscure; still it is more than probable that they are often due to the formation of little effusions which have not been completely absorbed; experience teaches us also that they are frequently developed during pregnancy, and that this state has, without contradiction, a great influence upon their growth; finally, it has also been observed that the tumor often notably increases in size at the period of the menstrual congestion and diminishes anew after the periods.

The often very considerable hardness of the fibroids, their relatively very slow development, their insensibility and the normal state of the integuments which cover them, will not permit them to be confounded with cysts or cancerous tumors; if suppuration or mortification comes to obscure the diagnosis, which rarely occurs except in the very voluminous fibrous productions, the microscopic examination of the tumor, which in these cases ought always to be extirpated, will demonstrate its nature.

The partisans of **therapeutic treatment** have especially recommended frictions with ointments of iodine or bromine, fomentations and hip-baths with natural or artificial salt waters. We have employed all these medicaments during a long time, in a small number of cases, it is true, but as we have never seen

any fortunate results, we advise, every time that the tumor becomes a source of pain to the patient, to proceed to its extirpation. The operation is most easy when the fibroid is situated in the slightly dense cellular tissue of the labia majora; it is always possible after having made an incision upon its surface to enucleate it with the handle of the scalpel. It has been advised to amputate the entire lip; but this dangerous procedure is never applicable except when the nature of the tumor is very clear, or where its excessive size has so elongated the lip that after its extirpation it forms a flap hanging very low and interfering with the movements of the patient. Furthermore, we have the experience that the organ in this state is still susceptible of considerable retraction; some weeks after the extirpation of a fibroid of the size of the fist of an adult, of which we have spoken, the diseased lip had completely returned to its normal proportions; there is more reason to prefer to amputation the enucleation of the tumor whenever it is practicable.

B.—*Cysts.*

So far as we know, cysts of the vulva are found only in the labia majora; they are sometimes sufficiently large, and may even attain to the size of a child's head *à terme*. They are ordinarily developed in the cellular tissue which surrounds the folds of the skin of the lips; their cavity is then, with very rare exceptions, single and filled with a limpid, serous and very liquid fluid; it is rare to find in them fat, hair, teeth, bones, etc., at least we have not observed them in any case of the kind. Another sort of cyst is due to certain modifications of the vulvo-vaginal gland. See what Huguier has said on the subject of the particularities of these neoplasmata.[1] The cyst is most often **developed** in one of the granulations of this gland; this granulation is more or less dilated and has ceased to communicate with the excretory conduit. In other cases we find four or five granulations of different degrees, from the size of a little pea to that of a grape, and without any communication either between them or with the excretory canal.

Sometimes the cyst is formed at the expense of the excretory

[1] See Huguier. Diseases of the follicles of the vulva and the vulva-vaginal gland.

canal, the orifice of which is found naturally or accidentally obliterated; the mucus, after having dilated the canal by its accumulation, increases nearer and nearer its various ramifications, then the granulations which are situated at their extremity, and it is then a ramified cyst, appendixed and of the most bizarre form.

The state of the soft parts allow the vulvo-vaginal cysts, for a certain time, to preserve the spherical or oval shape which, for the most part, they have at their origin: it is only later and when they send out prolongations in different directions, especially along the walls of the vagina and rectum, that their primitive form is altered.

The cysts which occupy us, although seated near the same region, have not identically the same position.

One kind, and these are the most numerous, are situated immediately below the mucous membrane or only a quarter of a line or so deep; they are then seated in the excretory duct or in the granulations nearest to the vulva.

The others are more or less near to the tuberosity of the ischium, the ascending branch and the inferior extremity of the vagina; these are the cysts developed in the external and upper parts of the glandular body or in its accessory granulations.

The **vulvo-vaginal cysts** in general **produce** but very **little functional troubles,** and further, these are not very constant; they occur only in the case where the very voluminous cyst distends the tissues and compresses the neighboring organs.

With some women, however, at the menstrual epoch, the cyst becomes the seat of a turgescence, of a sanguineous congestion, which increases the volume and sensibility to such a degree as to attract the attention of the patients. In other cases, the cyst becomes more painful and more voluminous after an excessive fatigue or an excess of coitus. If these causes persist in acting, a veritable phlegmasia may attack the walls of the cyst of the surrounding cellular tissue, and we see an engorgement produced, an inflammation and abscess of the vulvo-vaginal gland. If the walls of the cyst inflame at the same time and secrete pus, we have to treat a disease which at the same time participates in a cyst and an abscess.

The **cure** of the cysts is not possible but by surgical treatment. For the large ones, we must choose extirpation; still this is not always easy, because often the walls of the tumor adhere quite strongly to the adjacent cellular tissue, in consequence of the exudations which have taken place around it; sometimes even the adhesions are so intimate that it is necessary to renounce the enucleation and to be content with opening the cyst by a large incision; after having completely emptied it, we fill the sac with pledgets of lint covered with an irritating ointment, or indeed we may cauterize the walls with nitrate of silver or mercury; this latter caustic enabled us once to attain the complete cure of a cyst of the size of a pullet's egg; in another case we arrived at the same result by repeated applications of the tincture of iodine; on the contrary, the excision of a part of the walls, that many surgeons have recommended, and which we have twice tried, was not at all crowned with success.

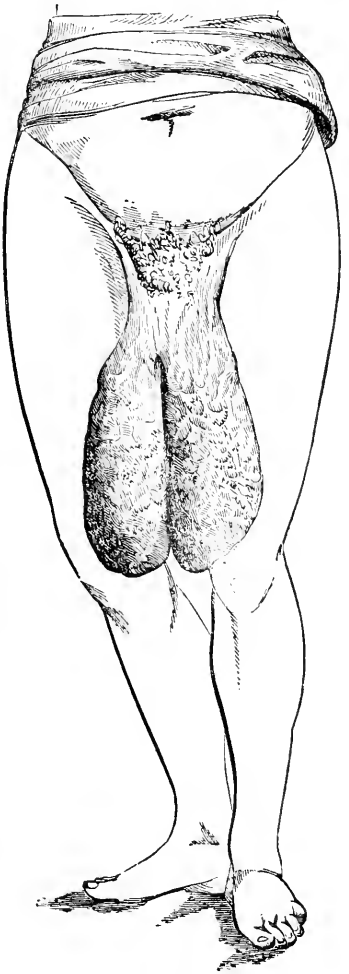

Fig. 61.—Elephantiasis of the vulva.

C.—*Elephantiasis of the Vulva.*

This is quite a rare affection. We have but a single time had the opportunity to observe it in a marked manner. It is the same case of which Kiwisch speaks in his clinical lessons (vol. ii., p. 500). A young girl of seventeen years of age, treated at the great hospital at Prague, showed such a hypertrophy of the labia, that they hung down to the middle of the thighs in the form

of tumors, larger than the head of an adult man, brown and sprinkled with numerous tuberosities. The patient was constrained in all her movements. She showed at the same time analogous tuberosities upon different other parts of the body. If we are not deceived, she died later of a rapid consumption.

Elephantiasis (Fig. 61, case observed by Dr. Rigal de Gaillac) is formed by a hypertrophy of the tissues which form the skin of the sub-cutaneous cellular tissue, in which are often developed a considerable number of tumors of variable size, spherical or irregular, formed by fibres of conjunctive tissue crossing in every direction, between which is found very dense or less firm cellular matter, and at certain places filled with serosity; the diseased parts are characterized by a great poverty of blood vessels, their surface is ordinarily brownish, knotty and unequal; the openings of the hair follicles are considerably dilated. At certain places, sometimes over the whole surface of the tumor, irregular vegetations are found proceeding from the hypertrophy of the cutaneous papillæ; the skin is then grooved in every direction, and, as it were, creviced. In the cases which we have observed, the hypertrophied lips were the seat of a great number of superficial ulcerations, which were cured in part, leaving indurated and callous cicatrices.

Elephantiasis of the vulva is very troublesome for the patient, from the weight to which the labia attain, and very painful from the ulcerations which are formed upon their surface. When there are no ulcerations, the affection is not painful and may last many years without exerting any injurious influence upon the constitution. It does not even exclude the possibility of conception, as many observations have proved; still, when it is marked, it is ordinarily accompanied by amenorrhœa and sterility. In these cases it is not rare to see the patients emaciate, and lose their strength; sometimes pulmonary phthisis or general dropsy comes as the consequence. Elephantiasis, after having been developed up to a certain point, often remains stationary, then it appears to make new progress, when conception supervenes; still, it should not be forgotten that this increase of volume, which pregnancy excites,

may only be a serous infiltration of the diseased part, which will disappear after the labor. We will further remark that this affection does not always remain confined to the labia majora, it may also affect the nymphæ, the clitoris and the perineum.

The **development of elephantiasis** has been attributed to chlorosis, scrofula and constitutional syphilis; nothing has yet been proved; it is quite as little certain that it is due in certain cases to the too frequent satisfaction of venereal desires. In certain countries, as, for example, in the island of Barbadoes, elephantiasis of the vulva appears to be epidemic; in general it is more often observed in the tropical countries than in the temperate zones.

In the first place we treat this affection by local and general blood-lettings, and especially by scarifications of the diseased part, then by lotions and emollient baths, narcotics and astringents; but this treatment has quite as few beneficial results as the compression of the hypertrophied tissues which are employed later, or the repeated application of vesicants. We think that a proper regime is the surest means of preventing the progress of the disease. When there is only a partial hypertrophy of certain parts of the vulva, we may have resort to the extirpation of the tumor; still, even when the operation succeeds, full success is not assured, for experience has shown that the relapses are frequent. We should never operate when it is necessary to make the incisions into the diseased part, for cicatrization will be difficult or completely prevented by the ulceration of the wound or its surroundings, ulcerations of long duration, which furthermore risk becoming fatal to the patient by producing a rapid marasmus or pyæmia.

D.—*Cancroids and Cancerous Affections.*

This is sometimes a **primitive affection,** and its seat is then ordinarily in the labia minora, clitoris, or in its vicinity; at other times it is secondary and accompanied by analogous affections of the uterus and vagina. The cancroid of the vulva evinces the same peculiarities as that of the womb and vagina; it is less rare than the medullary or fibrous cancer. The can-

croid, like the cancer, is accompanied by periodical hæmorrhages; in the intervals there is an abundant secretion of a puriform or clear and bloody liquid. The cancroids are generally indolent, while cancer is ordinarily the seat of violent, burning or lancinating pains, which irradiate from the vulva into the interior of the pelvis toward the anus and even to the thighs. See the prognosis and treatment which we have given of cancroids of the uterus and vagina.

E.—*Caruncles or Fungous Excrescences of the Urethra.*

In speaking of neoplasmata of the vulva, we cannot silently pass by an affection of the urethra, which is presented in the form of a tumor at the entrance of the vagina, and the seat of which renders the exact knowledge of it indispensable to every gynecologist.

The caruncles, fungous excrescences or vegetations of the meatus urinarius of the female constitute tumors of the size of a hemp-seed to that of a goose's egg. Flat or pediculated upon the mucous membrane of the meatus or the inferior extremity of the urethra, they are covered with a more or less thick layer of pavement epithelium, and are themselves formed of an embryonic cellular tissue, and of numerous vessels, which, according to the researches of Wedel, are disposed in groups, ramify in a regular manner, and much remind one of the *vasa vorticosa* of the choroid. These tumors are due to an excess of development of the mucous papillæ, forming tree-like vegetations of the cellular tissue. They are of a bluish red, smooth, rarely grooved, and originate generally upon the lips of the meatus urinarius. Still they sometimes go out of the urethra itself, although it is rare that they are located very high up in the canal.

These vegetations are ordinarily very **sensitive.** The patients are often in the first place rendered attentive to this evil by the violent pains excited by micturition. This pain is often accompanied by frequent desire to urinate, the effort which the patient then makes pushes the tumor which is found in the urethra into or before the meatus urinarius. All these causes predisposing to a congestion of the organs of the pelvis, augment

not only the sensibility of these vegetations but also their volume. If the epithelial tunic ulcerates, which frequently happens, abundant hæmorrhages are thereby facilitated.

There is almost always at the same time a chronic catarrh of the urethral mucous membrane, so with reason this affection is considered as one of the most frequent causes of caruncles.

Left to themselves, the vegetations of the urethra continually **increase in size,** become continually more painful, and the fear of the pains forces the patient to retain her urine for a long time; there may thence result to the patient serious and painful affections of the urinary organs; the entire organism may feel the effects of these continual pains, of the nervous excitation, and of the fever which these patients constantly have. Finally, it should not be forgotten that a radical cure often finds great difficulties; for these vegetations, if they are not entirely removed, return with great facility.

The simplest and easiest treatment is to seize the tumor with a forceps or fine hook, and to excise it from the bottom by means of scissors curved upon the flat surface. It is important to leave nothing of the neoplasm and to further remove a part of the sub-mucous tissue upon which it takes root. The hæmorrhage is often considerable; it is arrested by touching the wound with a stick of nitrate of silver or with concentrated nitric acid. In extreme cases we may have recourse to the actual cautery, or indeed we might succeed in drawing together the two sides of the wound by a single stitch. When the tumor is situated too high in the urethral canal for the pedicle to be accessible to the scissors, we may practise torsion with the aid of a small polypus forceps, then we should cauterize with a crayon of nitrate of silver passed into the urethra. The ligature which some surgeons have advised, is much more complicated and has a less certain success, for it is after this procedure that the most relapses have been noted. When there are many small vegetations around the meatus and slightly projecting, we should prefer cauterization to excision; they should be touched every two or three days with nitrate of silver or with concentrated nitric acid. The violent pains which result therefrom are sometimes promptly calmed by a cold hip-bath or by iced compresses.

§ 8. *Pruritus of the Vulva.*

This affection is very frequent; it arises from a hyperæsthesia of the sensitive nerves of the vulva. To avoid repetition, we refer the reader to what we have said respecting pruritus of the vagina on p. 550.

PART SEVENTH.

PATHOLOGY AND THERAPEUTICS OF THE DISEASES OF THE BREAST.

§ 1. *Absence and Rudimentary Development.*

The absence of the breasts is met with conjointly with the absence or rudimentary development of some of the other sexual organs; or it is the result of a fault of conformation in the part of the thorax which supports the breast, of a defective development of the ribs or the pectoral muscles, etc. It is unnecessary to say that this anomaly may have bad results upon the economy; the opinion that it is only met with in sterile women has long since been refuted by incontestable observations; the work of lactation has even been seen, in the absence of one breast, to follow its regular course in the other.

We will speak hereafter of the non-congenital absence of the breast in consequence of wounds, suppuration, mortification, etc.

The **incomplete development** of the breasts exists with or without a defect of conformation in the organs of the pelvis. The mammary glands are normal, excepting their extreme minuteness, the slight development of the nipple and of the areola, and the absence of fat in the enveloping cellular tissue.

In certain families this anomaly appears to be hereditary. It often coincides with the defective development of the entire body; we think that it is frequently owing to certain constitutional maladies, such as scrofula, tubercles and chlorosis. Perhaps sometimes the custom of wearing corsets, compressing the thorax, impedes the development of the breast.

The old authors relate cases of the complete absence of the breasts; we think that oftener they exist in a rudimentary

state. This anomaly is distinguished from a simple depression of these organs, in that they are at the same time very thin, and the areola has a very small extent.

When the gland itself is not sufficiently developed, the secretion is very slight; it does not suffice for the nursling, while the rudimentary formation of the nipple renders suction difficult; the efforts that the child makes to seize the nipple which is constantly escaping from him, always cause a loss of epithelium, excoriations and ulcerations. The incomplete depletion of the milk-ducts may then give rise to an inflammation of the gland.

We possess no means of overcoming the rudimentary development of the mammary gland. When, at the end of three or four days after the labor, after repeated suctions on the part of the child, the secretion does not become more abundant, we should beware of attempting to force it by the violent action of suction apparatus, for it is not rare to see such manœuvres followed by violent inflammations. In cases of incomplete development of the nipple we must try to replace it by artificial nipples. We ordinarily use the end of a calf's teat of about two inches in length; the interior is scooped out, then it is sewed upon a ring of india rubber or leather; this ring is placed upon the breast in such a manner that the nipple enters the excavation of the teat; suction is thus very well effected. When this apparatus is not in use, it is kept in water; and every two or three days the teat must be changed. [If a little spirit is placed in the water it will remain perfectly good for many months. Vulcanized rubber has in this country almost entirely supplanted the calf's teat once in general use. Care must be taken to keep it perfectly clean, as the acidulated milk remaining in it will often be noxious to the child. If the milk flows too freely through it, it should be slightly stuffed with a wad of clean tow or hair.]

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§ 2. *Supernumerary Nipples.—Polymasthus.*

Cases are found cited in the annals of science where three, four or five nipples had existed on a female thorax; these supernumerary organs have also been observed upon other parts of the body, in the axillæ, upon the abdomen, thighs, etc. There may also be a multiplicity of nipples. These malformations of conformation are, however, very rare, at least in Europe; they are said to be more frequent in the Antilles. They are deformities which are only injurious to beauty, so we shall not dwell further upon them.

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§ 3. *Atrophy.*

It is, in the majority of cases, the natural consequence of senile marasmus which at a certain age attacks the entire sexual apparatus. To anatomical examination the glandular substance shows but a small number of milk ducts partly permeable, partly obliterated. The terminal vesicles have also much diminished in volume and number; sometimes lactiferous canals are observed, filled with salts of lime or transformed into cysts, of the size of a grain of wheat to that of a cherry stone, and filled with a caseous, or a creamy substance. The degenerated duct quite often forms a collection of little vesicles arranged like beads. The entire volume of the breast does not always diminish with that of the gland; this is replaced by a very dense cellular tissue mingled with much fat; and the breast often participates, on the contrary, in the development of the adipose tissue which is frequently observed in all the organs of the body about the critical age. At a more advanced period this adipose tissue disappears; the breasts soften, shrink, hang upon the chest; the skin is thicker and denser, the nipple more projecting, the bosom falls away and has a disagreeable aspect.

Besides this senile atrophy another form is sometimes met with in young women. It is associated with affections of the uterus, ovaries, etc., and appears sometimes after frequent nursings. When the breast is the seat of voluminous neoplasmata, which impede the circulation, it is not rare to observe partial atrophy of the glandular tissue.

Senile atrophy of the breast generally has not an injurious effect upon the great functions of the organism; in certain, quite rare cases, however, it may become the source of accidents, in that the products of the secretion accumulating in the partly obliterated lactiferous ducts irritate the adjacent tissues, and are thereby the source of hyperæmia, inflammations, and partial suppurations. The atrophy which is declared before the critical age may be the cause of an insurmountable obstacle to nursing. It may be conceived that this affection is not accessible to the assistance of art.

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§ 4. *Hypertrophy.*

A.—*General Hypertrophy.*

The general hypertrophy of the breasts may cause an enormous increase in their weight and size; it ordinarily affects both organs. The excess in volume is principally due to the increase of the adipose tissue, the hypertrophy of the glandular parenchyma is only a secondary part. On section, the tissues are either found very vascular and furrowed in all directions by vessels dilated and gorged with blood, or on the contrary, are very anæmic and very dry. The first of these two conditions is especially met with when the disease is rapidly developed in young subjects; the milk ducts and the tubules of the glands are then ordinarily enlarged, the first are dilated and sometimes filled with milk. The hypertrophied breast is, on the contrary, anæmic, when the disease has made but very slow progress.

A connection seems to exist between this morbid state and

certain alterations of the genital organs. The sudden suppression of the courses has often been charged with being the cause of it. We think that sometimes the physiological development of the mammary glands at the age of puberty, or during pregnancy and lactation, may, if excessive, become the primary cause of an abnormal nutrition. It is rare that the hypertrophy is preceded by inflammation.

The tumefaction appears simultaneously in both organs or in one of them first, and it is not till later that the other also is affected. The progress is either acute or chronic. In the first case, the breast is very rapidly developed. Often there are quite violent pains, and the patients complain of a tension and dragging, which radiate toward the corresponding arm. Sometimes the skin reddens and is tender to the touch. Little by little the pains cease, the increase of the breast remains stationary or makes but very slow progress. When the progress of the disease is more chronic, these inflammatory phenomena are almost completely absent, the breast is the seat of no pain, and increases in an insensible manner. At most, the patients only complain at the beginning of a disagreeable itching; afterward it is the weight and volume of the tumor which trouble them. There is almost always amenorrhœa.

When the disease is very marked, we need not hope for a radical cure. It may place the life in danger when the enormous volume of the breast occasions functional troubles in the important organs, when, for example, the patient has to keep her bed for years, death is then produced by phthisis pulmonalis, or by some affection of the organs of circulation or digestion. This hypertrophy is generally considered as an obstacle to conception; when it exists there is frequently an abortion or a miscarriage.

For **treatment**, the practitioner should, above all, direct his attention to the organs of the pelvis and assure himself of their state. Against the disease of the breast itself, we think that iodine energetically administered may have the most salutary results. As topical means, we may try the methodical use of the compressed bandage of Seutin, and the application of ointments of iodide of potassium or mercury. When life is in danger, or when the excessive size of the tumor becomes

insupportable to the patient, there is nothing further to be hoped for but the amputation of the diseased organ.

B.—*Glandular hypertrophy.*

This never affects all the lobes of the gland. Those attacked form very circumscribed tumors of the size of a nut or a pigeon's egg, up to that of the size of a man's head, inclosed like foreign bodies in the midst of the tissue of the breast. These tumors never contract adhesions with the pectoral muscles and with the breast, unless they are very voluminous. The smallest are mostly soft and very friable, and the larger ones are dense and elastic. On section, they evince a lardaceous aspect, sometimes granular, of a bluish white. They are little vascular. They are enveloped by a fibrous coat intimately adherent to the normal glandular tissues. When the hypertrophy remains limited to the lobules of the gland, it has a granular tissue, or it is distributed over the lobes so that the breast is bossellated and appears to be formed of greater lobes than in the normal state, or it extends simultaneously to the cellular tissue and to the glandular tissue. The whole breast then forms a homogeneous tumor. Finally, the hypertrophy may be complicated with the formation of cysts, which is very often the case.

Glandular hypertrophy is most frequently found in unmarried or sterile women. No age appears to particularly predispose to it; it is the same with the troubles of menstruation to which the old physicians used to give so much importance. The action of certain exterior violence is not without influence.

These tumors are ordinarily developed in only one of the breasts; their progress is very slow and without great inconvenience to the patients. Hence they are not very often perceived till very late. Sometimes there is a sensation of fullness and weight, which notably increases at the epoch of menstruation. It is very rare that there are pains or violent and extended twinges; the increase is very slow, with the exception of the cases where cysts are formed in the interior of the gland, increasing rapidly in size. The great mobility of the tumor is characteristic; it is never absent where the hypertrophy is superficial or profound. In rare cases there is a temporary

tumefaction of the axillary glands. The general health does not notably suffer.

It is not always possible to distinguish this hypertrophy with entire certainty from other tumors; particularly it is often difficult to avoid confounding it with cancer. However, if the individual is still young, if the tumor is formed but very slowly, if it is entirely or almost without pain, if its growth is very slow or remains even stationary for years, if it does not exert any injurious influence upon the general state of the health, and finally, if the neighboring lymphatic glands do not participate in the tumefaction, the idea of the presence of a cancerous affection may be excluded. The diagnosis may offer the greatest difficulties when the cyst developing in the hypertrophied parts take on a rapid increase and occasion great pain.

Some physicians say that they have observed a spontaneous cure; this is surely a very rare exception. Extirpation, however, is ordinarily attended with complete success, for relapses are very uncommon. Other methods of treatment have not generally any results; the external use of iodine and its preparations, seconded by the application of the bandage of Seutin, has been much recommended. Care should be taken to avoid all causes of irritation which may congest the diseased part. When the nature of the tumor is not certain, or when its great volume becomes too troublesome, we cannot long hesitate to propose its extirpation.

C.—*Hypertrophy of the Adipose Tissue.*

It may be circumscribed and affect only a part of the breast (**lipoma**), or it is an excessive development of the entire adipose tissue, which equally extends to both organs superficially, and into the deep layers penetrating between the lobes of the glandular parenchyma. In the latter case ordinarily there is no pain, the excessive size alone troubles the patient; while lipomata often occasion excessive pains, radiating to a distance, and may also sometimes be accompanied by erythema and erysipelas. Setting these cases aside, the skin presents its natural color in the two forms of fatty hypertrophy. The lipomata

are tuberous, moderately hard, showing no fluctuation, and but very rarely adhering to the skin. The causes are completely unknown; sterility and anomalies in menstruation do not appear to be without influence upon their formation. Single lipomata may require treatment, for they can be extirpated.

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§ 5. *Ectasia of the Vesicles and of the Milk Ducts.*

The dilatation of the milk ducts and of the vesicles of the mammary gland is generally limited to one or a few lobes of this organ; it is especially met with in the part which is in relation with the pectoral muscle. An anatomical examination discloses in it a very great number of vesicles of the size of a pin's head to that of a pea, of a yellowish white, greenish or approaching to black; they are often placed upon a pedicle which is itself dilated in form of vesicles of variable size. Their wall is formed exteriorly by a coat of dense cellular tissue, lined within by a layer of epithelium; they contain a matter, either mucous, caseous, or creamy, consisting of epithelial cells, fatty droplets and corpuscles of colostrum. Sometimes the vesicles communicate together by very minute ducts. The lactiferous canals in the neighborhood of these vesicles are sinuous and dilated in an equal manner, or in a bead-like form; their contents is the same as that of vesicles.

When this formation of vesicles is not carried on, except upon the deepest layers of the gland, which are related to the wall of the thorax, the breast exteriorly does not present any notable modification. At the most, when the parenchyma is indurated all around the vesicular degeneration, a tuberous hardness is perceived, which is either extensive or more

or less circumscribed. This hardness becomes more sensible when in the superficial layers of the gland there has been an exudation of a blastema which is transformed into connective tissue; in these cases there are formed hard, bossellated, little movable tumors of the size of a pea to that of a goose's egg, vulgularly called **milk tumors.**

Ectasia of the ducts of the lactiferous vesicles is always due to the incomplete escape of the product of the secretion which accumulating dilates them and determines the irritation of the surrounding tissues. The sanguineous congestion is followed by the exudation of a blastema which is slowly organized, compresses the nearest canals, contracts them, and cannot but add another obstacle to the escape of the liquid which is behind the compressed part. Thus all the circumstances which during and after lactation opposed the free flow of the milk, ought to be considered as causes of this affection; such are, for example, deformities of the nipple, exudations into the glandular parenchyma, tumors which compress one or several of the milk ducts the sudden weaning of the nursling, etc.

This affection does not provoke symptoms which clearly characterize it. At first the patients complain of pains increased by touch, the bosom is a little tumefied, the axillary glands are swollen and sensitive; after the effusion of the blastema, there is formed, generally pretty deeply, a tumor more or less distinctly circumscribed, which, at the end of two or three weeks, increases no further and loses its sensibility at the same time that the lymphatic ganglia resume their normal size. The tumor may remain for years without incommoding the patient.

These ectasia may be confounded with scirrhus or with the partial hypertrophies of which we have spoken; still cancer properly belongs to a more advanced age. Its first appearance is not generally painful, the tumor increases continually, it is afterward accompanied by a permanent affection of the lymphatic ganglia, it adheres spontaneously to the skin and speedily ulcerates. The tumors due to glandular hypertrophy are for the most part developed without pain, slowly increase, present a granular and lobulated surface, preserve during their entire duration a remarkable mobility, and are but very rarely accom-

panied by an intumescence of the axillary glands. Such are the points which will aid the diagnosis, without, however, always rendering it possible.

When the tumor acquires a considerable volume, when its development is accompanied by violent inflammatory symptoms, it greatly agitates the patient, who thinks she has a cancer. It deprives her of sleep, and it may have an injurious influence upon the general state of the health; but all these accidents disappear of themselves in the course of the disease.

The surest preventive means is to direct and carefully watch over the nursing; when once the malady exists, we should employ against it all the means which we have enumerated above in speaking of partial hypertrophy; they will have more effect than the application of hemlock, ointments of melilotus, ammonia, and mercury, carbonate of potash, etc., which many practitioners say they have successfully employed.

Bibliography.—Cruveilhier, Mém. sur le corps fibr. des mamelles (Bulletin de l'Académie de médecine. Paris, 1844, vol. ix., p. 330) and discussion in the Academy by Blandin, Velpeau, Bérard, Gerdy, Roux, Amussat, Lisfranc. (Same volume, p. 349 to 362.)—Nélaton, Les kystes de la mamelle. (Gaz. des hôp. 1851. No. 79.)—Birkett, l. c., p. 68.—Albers, l. c. No. 12.—Meckel, l. c.—Velpeau, Mém. sur les tumeurs adénoïdes de la mamelle. (Rev. méd. chir. March, 1851.)—Fœrster, Handb. d. spec. path. Anat. Leipsic, 1854, p. 343.—Scanzoni, l. c., p. 85.

§ 6. *Galactocele.*

Under this denomination are comprehended two forms of mammary tumor due to the accumulation of a two great quantity of milk.

In the first form the milky collection is found in a sort of cyst formed by the dilatation of a duct, or of an obliterated lactiferous sinus; this pocket is perfectly close or in communication with some equally dilated milk-ducts. At the commencement the contents are ordinary milk; in old tumors we find beside the globules of milk and colostrum, a variable quantity of epithelial cells. The surrounding glandular tissue is indurated or atrophied.

The second form is due to the rupture of one or several canals, thence arise an effusion of milk into the cellular tissue and an accumulation of this liquid into larger or smaller cavities; where it gradually thickens and ordinarily determines a suppurative inflammation of the neighboring glandular tissue.

Tumors of the first category are generally developed without pain during or a little after lactation; they may attain the size of a man's fist, present a distinct fluctuation, and might easily be confounded with an abscess of the gland, if ordinarily all the symptoms of an inflammation were not absent. To assure the diagnosis it is best to make an explorative puncture by means of a very fine trocar; there flows by the canula a liquid in which an exact examination will recognize all the characteristics of milk.

Tumors of the second kind, are ordinarily developed after a sudden discontinuance of nursing. Conjointly with the intense pains and sometimes even with violent fever, there is formed in a very little time, in some part of the breast, a circumscribed, irregular, bossellated tumor. The very tense skin which covers it is of a dark red. At the end of some days it presents one or more points of fluctuation, which, when they are opened, frequently discharge a considerable quantity of a liquid which is nothing else but milk. In exploring the cavity by means of a sound, we can sometimes discover communications with other neighboring cavities; afterward, we have ordinarily nothing more to do than to combat the consequences of the suppuration of the glandular tissue; still, it sometimes happens, that for a long time there are new accumulations constantly formed of milk, so that by turns, milk and pus alternate from the natural or artificial openings.

These two forms of galactocele have for immediate cause, some obstacle presented to the flow of the milk, which accumulates in great quantities in the ducts and lactiferous sinuses; this affection is often especially to be feared, when the flow of the milk is suddenly interrupted, at a period when its secretion is still in all its vigor. The prognosis is unfavorable, especially for the second form, because it is ordinarily complicated with an inflammation and suppuration of the glandular tissue which

has a very slow progress and more or less exhausts the strength of the patient.

The treatment consists in opening as soon as possible, by a large incision, the cavity which contains the milk. We should then apply a convenient compressed bandage and should make, several times a-day, injections into it, at first with tepid water, later with solutions of nitrate of silver, alum, or tincture of iodine. When the inflammatory phenomena exist no longer, the occlusion of the sac may be hastened by placing therein balls or pieces of lint smeared with an irritating ointment.

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§ 7. *Milk Fistulæ.*

Under this name the abnormal ducts are designated, by means of which the canals or the lactiferous sinuses are in communication with the external surface of the skin, and by which the products of the secretion of the gland drain out in greater or less quantity.

The development of a fistula is always owing to the lesion of a duct, or a sinus filled with milk; this lesion may be traumatic or produced by the suppuration and mortification of the adjacent tissue. It is necessary to distinguish between milk fistulæ and fistulæ of the breasts, which are due to the fact that an abscess, formed in consequence of an inflammation of the breast, opens externally in consequence of a fistulous opening which does not discharge milk, but pus or sanious matters.

The milk fistulæ are cured at the end of a tolerably long time, spontaneously or in consequence of proper treament. They permit a better prognosis than lacrymal, salivary or urinary fistulæ, because the cause which nourishes the fistula, that is to say, the continuation of the secretion of the mammary glands, disappears at the end of a certain time.

As the first condition for the cure is to retard, as much as

possible, the secretion of milk, weaning suffices, in certain cases, to cause the fistulæ to disappear. We second the efforts of nature by cauterizing the fistulous opening, or at least its exterior orifice, by means of nitrate of silver, in substance or pulverized, and by the injection of astringent liquids. When the exterior orifice is too small to practise these manœuvres, it is enlarged by means of the bistoury or a piece of prepared sponge.

§ 8. *Anomalies of the Secretion.*

A.—*Augmentation of the Secretion.—Galactorrhœa.*

The quantity of the secretion of the mammary gland being very variable without either nurse or child suffering therefrom, we shall, in what follows, speak only of the cases in which the excess of the secretion occasions a continual oozing of milk, at first normal, then clearer, serous, containing little casein, and in consequence not very nourishing. The quantity of the milk excreted is sometimes enormous; it may be several quarts in the twenty-four hours. This anomaly is ordinarily met with in both breasts, without it being possible to discover the cause in a precise manner. It is not rare for the hypersecretion to be owing to excessive irritation of the mammary nerves, caused by a too prolonged or too frequent nursing; it is also sufficiently probable that there exists a certain relation between galactorrhœa and menstrual hyperæmia, the irritations of the genital system, venereal excesses, masturbation, etc.

The commencement of the disease is sometimes accompanied by febrile phenomena, and by a considerable turgescence of the breasts, occasioned by the sanguineous congestion, of which they are the seat; in other cases it is only insensibly that the and normal secretion increases to a galactorrhœa. When this affection exists for a long time, the patient gradually loses strength; she suffers from troubles of the digestive organs, and presents the phenomena of anæmia and hysteria. When she does not recover, she at last falls into marasmus (tabes nutricum) or she dies with a pulmonary phthisis, which is slowly developed, or finally with a general dropsy. There has also been observed in consequence of a long and abundant galac-

torrhœa, mental weakness and anomalies in the functions of the organs of special sense. [A case has recently come to our knowledge of a woman who had such a profuse secretion of milk that her dress was kept constantly wet thereby for eight years, and which no means employed by various practitioners had been able to arrest. During this time menstruation continued, but pregnancy did not occur.]

The first indication consists in weaning the nursling as soon as possible, then to order a strengthening regimen and treatment, at the same time assuring ourselves that there is no affection or functional trouble in the organs of the pelvis. For local treatment we may employ injections of the diluted tincture of iodine, a solution of nitrate of silver or caustic potash thrown into the milk ducts, with the aid of an Anel's syringe; compression of the breasts by the bandage of Seutin has been much recommended. We will also cite as empirical remedies, recommended against galactorrhœa, the internal and external use of iodine and its compounds, as well as camphor and conium.

Bibliography.—Jacobson, in Kausch, Mem. de. Heilk. Sept. 1829, p. 109.—Hauck, Casper's Woch. 1836. No. 27.—Naumann, Med. Klinik, Bd. viii., p. 645.—Nicolai, Path. Bd. ii., p. 3 —Meissner. Frauenzimmerkrankheiten. Bd. ii., p. 426.—Kiwisch, Krankh. d. Wœchnerinnen. Bd. ii. p. 160.—Birkett, l. c., p. 193.—Scanzoni, l. c., p. 108.—Veit, l. c , p. 386.

B.—*Diminution or Complete Absence of Secretion.—Agalactia.*

When the quantity of milk furnished by the breasts does not suffice for the wants of the nursling, or when it is entirely absent, there is **agalactia.**

The too tender or too advanced age of the nurse, a masculine development, debilitating constitutional diseases, rudimentary development, acute and chronic affections of the breasts, etc., should be considered as the causes of this anomaly.

Agalactia is more injurious to the child than to the nurse; there is little probability of its disappearing when it arises from alterations of texture or faults of conformation of the breast; there is more hope when it is possible to combat in season the constitutional malady, to arrest the excessive secretions of other organs, etc. It is always necessary, in

the first place, to direct the treatment against the cause of the malady. Then we must seek, by continuing to give the breast to the nursling or by applying artificial suction apparatus, to irritate the nervous filaments of the gland, and thereby to lead to a more considerable flux of blood. We should second these efforts by making the nurse take tepid mucilaginous drinks, rich in protein, and nourishing, easily digested food, and we should recommend her to keep the breast warm. [Cataplasms of the leaves of the Ricinus communis (castor oil plant) galvanism and the constant drawing of the breast are strongly recommended by some as a positive cure.]

C.—*Poverty and Richness of Milk in Nutritive Elements.*

The larger or smaller quantity of casein which the milk contains depends, in the first place, upon the individual idiosyncrasy of the nurse; next upon the nature of her ailments. Food, rich in azotized matters, has much influence on the quantity of the globules, and, consequently, on the quantity of casein contained in the milk.

Milk not very rich in casein is too watery, and insufficient for the nourishment of the child; taken in great quantity, it may occasion digestive troubles, which may also be brought on by an excess of casein, especially in delicate and not very robust children. The regulation of the diet is the best means of combating this abnormal proportion of the constituent elements of the milk.

Bibliography.—Donné, Cours de microscopie: Anatomie microscopique et physiologie des fluides de l'économie. Paris, 1844, p. 442.—Vernois and Becquerel, Recherches sur le lait (Annales d'hygiène publique. Paris, 1853, vol. l., p. 43 *et seq.*)

D.—*Superabundance of the Globules of Colostrum.*

The milk which contains a too great quantity of the globules of colostrum, is recognized by its yellowish color, and by its viscosity; microscopical examination will remove all doubts. This anomaly is sometimes recognized among women who are feverish, who suffer from digestive disturbances and inflamma-

tory affections of the breasts; it is also observed during menstruation. In general it is only transient.

Bibliography.—Donné, loc. cit., p. 99 and 430.

E.—*Pus in the Milk.*

When, after the formation of purulent foci in the breast, suppuration affects some milk-ducts, the milk which runs out of the openings of the breast, presents sometimes under the microscope a large quantity of pus globules; it will then be very injurious to the health of the child; therefore, it will be necessary to interdict nursing from the diseased breast.

Bibliography.—Donné, Cours de microscopie, p. 431.—Scanzoni, l. c., p. 121.

F.—*Injurious influence of the Emotions upon the quality of the Milk.*

This influence is indubitably established by numerous observations; the alterations which the milk undergoes produces in the child digestive derangements and nervous accidents; hence, although we do not yet know in what manner emotional influences modify the quality of the milk, it is prudent to advise the nurse, who has had a serious excitement, not to give the breast immediately afterward to the child, but to draw the milk artificially which was then contained in the breasts.

G.—*Return of the Courses in New Nurses.*

It is observed that the milk of women that have their periods often tends to return into the state of colostrum; it is also said that at the same time the quantity of its oily constituents is generally diminished; from thence the digestive difficulties by which the nursling is often affected at this period. Coitus and a new conception ordinarily have analogous consequences, therefore, it will always be well in such cases to suspect modification in the quality of the milk, and not to delay too long the weaning of the child.

Bibliography.—Donné, l. c., p. 440.—Langheinrich, Scanzoni's Beitræge zur Geburtskunde. Vol. i., p. 232.—Vernois and Becquerel, loc. cit., vol. xlix., p. 301

H.—*Influence of Medicines upon the quality of the Milk.*

The action of medicines upon the milk is yet too little known for the observations collected up to the present time to allow definite conclusions. Still, it appears that the use of violent medicines ought not to be employed for nurses except with the greatest prudence for the well-being of the nursling.

[The present state of knowledge in regard to the medicines influencing lactation, *i. e.* the secretion and excretion of milk, is one of great confusion and uncertainty. As a distinctly recognized class, they have no place in modern systematic works on materia medica. The terms, galactapoëtica, galactophora, galactagoga, lactifuga, phymogalactetica, galactophyga, etc., have been employed so vaguely and contradictorily, so frequently, too, without specifying the individual substances to be so designated or "supposed" to have such properties, that but very little information can be gleaned from earlier writers. Finally, as to recorded practice, the medicinal properties of articles used or applications made in mammary diseases have rarely been precisely considered, the *post hoc* being here regarded *propter hoc*, *in a general sense*, and the statement being empirically and indefinitely, such an article "is useful in mammary inflammation," such a one "has been successfully employed against mammary abscesses," etc. We propose the name **lactatics** to designate the medicines influencing the elimination (*i. e.* the secretion and excretion) of the milk from the human breast, with the following classification:

A. Galactics (Promoters of Lactation.)
- I. Galactagentia: Inducers of Milk.
- II. Galactagogues: Expellers of Milk.

B. Antigalactics (Opposers of Lactation.)
- I. Ischogalactics: Arresters or Suppressors of Milk.
- II. Phygogalactics: Dispersers of Milk.

A. **Galactics** ARE AGENTS PROMOTING LACTATION: *i. e.* THE ELIMINATION OF MILK FROM THE HUMAN MAMMA. We designate by this term all substances that

(*a*) increase the supply of material to the secretory organs.

(β) directly or indirectly stimulate or excite the latter to increased activity, or

(γ) promote the evacuation of the milk secreted.

Physiologically and therapeutically, frequent application of the child is not only the natural but also the most effectual galactic. (Cases of men having secreted milk—rather anecdotes—also of Cape de Verde Islanders, etc., may be instanced, as noted on previous pages. Though these exceptional cases undoubtedly occur, yet under ordinary circumstances no agent has any galactic influence on the breast of any but females that have passed the earlier months of pregnancy.) Natural or artificial suction, therefore, stimulating embrocations and cataplasms, friction, electricity, and in short all the means which increase the flow of blood to the mamma, are galactics.

I. Galactagentia *are articles that tend to increase the quantity of milk secreted.* (They form the (α) and (β) of galactics.) They embrace

1. *Liquid food*, including milk, good nutritious soups, ale or beer, and other malt liquors. Lager-beer is much inferior to ordinary ale in promoting the secretion of milk, and principally as it would seem from the effect of the pitch with which it is impregnated, and which acts so powerfully and immediately upon the skin and kidneys, creating such a secretion of perspiration and urine, that the tendency to the breast is thus neutralized. "*Spirituous liquors*, instead of increasing, as many suppose, diminish the quantity of milk secreted." (Columbat de l'Isère, trans. by Meigs.) Almond milk (*i. e.* Mistura Amygdalæ, U. S.), etc.

2. *Fœniculum.*—Hippocrates, as well as Galen, both speak of fennel as a means of increasing the lacteal secretion. Dioscorides ascribes the same powers to it (lib. iii., chap. lxvii. *et seq.*) According to Mitscherlich, also, it increases besides other secretions, certainly that of milk (Stillé's Therap. and Materia Medica, vol. i., p. 592). In Germany, especially, it has been tried extensively and lauded correspondingly. It is given either alone as infusion *ad libit.*, or combined with various other articles still to enhance its power. We select the most celebrated and valuable formulæ, viz.:

HUFELAND:

℞ Sem. fœniculi, ʒj.;
Flav. cort. aurant., ʒss.;
Subcarb. magnes., ʒiij.;
Sacch. alb., ʒij. M. ft. pulv.
Ds. a teaspoonful three times a day.

BERG:

℞ Rad. fœniculi;
Apii petroselini;
Liquorit., āā ʒss.;
Herb. anethi;
Herb. fœniculi;
Herb. cerefolii, āā ʒss.;
Sem. anethi;
Sem. anisi;
Sem. fœniculi, āā ʒij.
Use two tablespoonfuls to the pint of water for tea.

RADIUS:

℞ Semin. fœniculi, ʒij.;
Semin. anisi, ʒij.;
Rad. liquorit.;
Herb. anethi;
Cerefolii, āā ʒss.
C. C. M. ft. species Ds.
Use to make strong infusion with hot water, and drink as tea with a little milk.

NEUMANN:

℞ Rad. salep, ʒss.;
Rad. liquorit., cort. aurant., āā ʒij.;
Semin. fœniculi, ʒj.;
M. ft. pulv. S.
Take a teaspoonful several times a day.

M. FRANK:

℞ Sem. fœniculi;
Sem. anisi, āā ʒss.;
Fabar. tostar. cacao, ʒss.,
M. S.
Take a teaspoonful four to six times daily.

We have obtained surprising results from Hufeland's formula, which we have employed in several cases, in one where the secretion had been suppressed for three weeks.

3. *Ricinus Communis* and *Jatropha Curcas.*—Castor oil, as well as the leaves of the castor oil plant, locally applied, has long enjoyed the reputation of promoting the mammary secretion. "It (Ol. Ricini) has been recommended as a local application to the breasts of nursing women to promote the secretion of milk" (Wood and Bache's U. S. Dispensatory, p. 517). Dr. McWilliams mentioned in his report of the Niger Expedition (Lond. Med. Gazette, Jan. 1847), that the inhabitants of Buena Vista (Cape de Verd Islands) are accustomed to provide a wet-nurse in an emergency in the person of any woman who has once borne a child, and is still within the age of childbearing, by continued fomentation of the mammæ with a decoction of the leaves of the Jatropha Curcas. (The leaves

were, in cases detailed, applied as poultices to the breast and as fomentation to the vulva for three days, at intervals.) These facts were in part confirmed by Tyler Smith (Lond. Jour., Oct. 1850), who speaks of the decoction of the leaves of Ricinus Communis called Bofareira. More recently Dr. Routh (Brit. Med. Jour., Dec. 17, 1859) exhibited three preparations of Castor Oil leaves, a tincture, a liquid (dose of each ʒj.), and an extract (dose gr. v.) The leaves had been obtained from Australia. Dr. R. had given to lying-in women with deficient milk, the infusion in combination with Conger eel soup; and the effect in inducing a copious flow of milk is stated as truly remarkable. Dr. R. had also administered the extract to unmarried women within catamenial ages, and the effect had been to induce intense pain in the breasts of such; but as he could not find anybody in that case that would try the effect of suction, he can't say whether milk was induced or not. After three or four days the symptoms were relieved by a copious leucorrhœa. Among the less generally recognized, perhaps also the less powerful, articles of this class are the vanilla and tonqua beans, but as yet we have found them efficient. The former, especially when given in half drachm and drachm doses of the ordinary extract, and even when used as flavors in puddings, ices, etc., frequently have a quite marked effect, although not a very reliable one.

4. We can hardly leave the subject of Galactagentia without referring to the causes on which non-appearance of milk after parturition, or subsequent suppression, generally depend; since the removal or counteraction of the cause in each individual case is generally the first requisite for successful treatment. We extract the following from Copland (Dict. of Pract. Med., Am. Ed., vol. ii., p. 775). "The non-appearance of milk in the breasts after parturition is generally owing to some fault in the organization, or in the nervous energy of these glands; to want of constitutional power, or of necessary nourishment; to excessive discharges, whether hæmorrhagic, lochial, or leucorrhœal; to the occurrence of acute or inflammatory disease; to the prœxistence of organic maladies; to mental distress or anxiety; to cold applications and astringents to the breast; or to various circumstances peculiar to individual cases. The

consequent suppression of milk is generally owing to fear, sudden terror or fright, anxiety of mind, unpleasant news suddenly or unexpectedly communicated, grief, all the depressing passions and emotions, startling noises, disappointment, vexation, anger," etc.

II. Galactagogues *are articles that tend to promote the flow from the breast of the milk secreted: relieving retention.* They form the (γ) of galactics. Retention of milk (in cases in which attempts at suction, both by the child or artificial means, are entirely ineffectual) being caused (*a*) by its becoming thickened and inspissated in its proper tubes, (*b*) by a spasmodic stricture of the milk-tubes, (*c*) by acute inflammatory swelling thereof, or (*d*) as the result of chronic inflammation of any number of milk-tubes near the nipple by closure of the aperture with obliteration of the canal, sometimes for an inch or more. These have been frequently described under the titles of strictures of the milk ducts and system of sphincters or muscular fibres surrounding the outer terminus of the reservoirs of the milk ducts at the extremity of the nipple. The modus operandi of galactagogues is evident, according to the cause. In the first case they are such as tend to restore the normal fluidity of the milk; in the second, such as relieve the spasm; in the third, such as allay the inflammation. In the fourth case, medicines will be insufficient, punctures of the tubes being necessary to remove the obstruction. The retention of milk, and the resulting engorgement, are sometimes limited to a single lactiferous tube; and the erroneous notion, heretofore alluded to, as old as the time of Aristotle, that a hair, swallowed, causes the obstruction in the tube and must be got rid of by suction, is still current, and has given the name to the disease in French (poil). The various antiphlogistic and antispasmodic applications need hardly be detailed here. Decoction of elder flowers internally has been especially recommended as influencing the fluidity of the milk, though all watery liquids (and perhaps pure water, as much) have probably the same effect. Bories recommends the following

℞ Nitr. depur.;
Sulphuret. hydrarg. simpl., āā ʒj.;
Mercur. dulc., ʒss.;
Arcani duplicat. ℈ss.;
Camphoræ, ʒss.;
Resinæ jalapæ, ℈j.;
Gummi mimosæ, ʒj.;
Syr. quinque radic. q. s. ut ft. pil. gr. iv.

S. Twice daily 2 pills, a couple of hours before and after dinner.

Lincke recommends

℞ Acetat. potas., ℈j.;
Concerv. flor. calendul. q. s. ut ft. bolus.

S. Take early every morning and after it a soup prepared as follows:

℞ Herbæ acetosæ, Betæ;
Herbæ cerefolii, Lactucæ, āā Manip., j.;
Butyri recent., Salis culinar., āā q.s.;
Aquæ, Oij.;
Coque et cola.

Edwards and Vavasseur recommend, in addition to cataplasms capit. papaver and soap,

℞ Pot. carb., ℈j.; Aq. flor. aurant., ℥j.;
Aq. tiliæ, ℥vj.; Syr. althææ, ℥iij.
M. Ds. To be taken within the 24 hours.

As to local applications, M. Ranques, of Orleans (Jour. de Progrès, vol. xiv.), and M. Conby de la Pomeraye (Archives générales de Méd., vol. xx., p. 591) attribute much efficacy to the following mixture:

Cherry laurel water, ℥ij.; Extract belladonna, ℈ij. gr. vj.; Ether, ℥j.

Velpeau (Diseases of the Breast and Mammary Region, London Sydenham Society, Ed. 1856, p. 43) says, he several times employed the above mixture with advantage; frequently it has failed. The following is the formula he has most frequently employed with success:

Sweet oil, ℥iij. ʒij.; Camphor, ʒss.;
Ext. belladon., gr. xvss.; Yolk of egg, gr. xxx.;
Ammonia, ʒj.; Ether, ʒss.

With this gently applied four or five times a day to the breast, he thinks we can usually succeed in obtaining a rapid liquefaction of the milk, and a manifest disengorgement of the parts

He says that he has also derived benefit from poultices with chervil (scandix cerefolium) boiled in milk, with the yolk of eggs, honey, and wine, and sometimes even from simple linseed poultices. Indeed it is my opinion that although so many stimulating and antispasmodic embrocations, as those of ammonia and camphor, iodide of lead, and especially mercurial friction, are strongly recommended, it is very probable that warm fomentations of water to the breast (by means of cloths, sponges, spongiopiline, poultices, etc.), systematic friction (toward the nipple with the hand), and systematic pressure (by means of compresses with roller-bandage, adhesive straps, or compressed sponge and roller) properly employed and persevered in, do in most cases all the good that can locally be done, besides natural and artificial suction.

B. **Antigalactics** ARE AGENTS OPPOSING LACTATION: *i. e.* THE ELIMINATION OF MILK FROM THE HUMAN MAMMA. Such agents are etymologically "anti-galactics," *i. e. opposite* in their effects to *galactics*, as far as they tend

(*a.*) to cause retention in the breast of milk already secreted; and, (*b.*) to diminish, entirely suppress, or prevent secretion.

But besides, there is a third group of antigalactics used as resolvents of lacteal tumors, which seem

(*c.*) to disperse milk secreted.

The first group will be well enough understood from the brief notice it will presently receive in the first paragraph, under the head of Ischogalactics. But the rationale of the action of the others is entirely unknown. The suppositions are—

(*α*) That the capillaries are contracted, so as to diminish the quantity of blood circulated through the organ, and to a degree incompatible with secretion;

(*β*) That the impression is made by nervous or other influence upon the secretory organs, lessening their activity; or,

(*γ*) That the absorbents of the part are stimulated to greatly increased activity.

I. ISCHOGALACTICS (*ἴσχω*, I keep back, I restrain) *are articles that tend to diminish the quantity of milk secreted.* It will thus be seen that we define ischogalactic articles to be exactly opposite in their effect to galactagentia. Before proceeding

with their enumeration, we will briefly consider the opposites to galactagogues, which latter we have defined as relieving retention. Now, the individual medicines that cause retention need not be detailed. They are tonics and astringents. In cases of incontinence of milk, *i. e.* of insufficient power of retention, preparations of iron or cinchona or other tonics, shower-baths, or cold salt water bathing in proper season, a cool state of the breasts, with change of air and light, are the safest and most beneficial remedies (Copland's Dict. of Pract. Med., ii., 774). Internal astringents, as mineral acids, etc., as well as topical astringents, as lotions of tannin, alum, zinc, etc., though they are used with success in these cases, should be employed with caution, as they are apt entirely to suppress the secretion.

Generally when antigalactics or antigalactagogues are spoken of, ischogalactics only are really meant. Against the excessive secretion of milk, cooling diaphoretics, mild refrigerants, and arterial sedatives, saline aperients [more especially *Potassæ Sulphas* (ʒss–ʒj.), or also potassæ bitrartras (ʒss.), or potassæ acetas (ʒiij.)], low or moderate diet, sparing use of condiments and liquids, and avoidance of sexual intercourse and sexual excitement, are to be recommended. M. Lever and Dr. Kennedy found nauseating doses of tartar emetic valuable, and Dr. Stillé speaks highly of full doses of castor oil. The special ischogalactics are as follows:

1. *Belladonna.*—We have already mentioned that Ranque, in 1829, used a liniment of laurel water, ether, and belladonna to relieve engorgement. He found that from its continued use the milk dried up entirely (Journal de Progrès, xiv. 254). Some years later, Schnurr published several examples of the same effects of belladonna (Hecker's Preuss. Medicinische Zeitschrift, Aug., 1834, p. 143). And in 1856, Mr. Goolden announced his success in arresting the secretion of milk with belladonna (London Lancet, Aug. 1856). Goolden's statement of these effects were soon confirmed in Europe and in this country. Mr. Newman reports success in more than a dozen cases in which no purgative nor other auxiliary treatment was employed (Braithwaite, xxxviii. 220): and many similar cases are reported in the various medical journals within the last two years, especially in the American Journal of Medical Sciences

the North American Medico-Chirurgical Review, the North American Med. Reporter, and the Philadelphia Medical and Surgical Reporter. [See also Trend in British Med. Journal, June 12, 1858.] In spite of the accumulated testimony of the ischogalactic effect of belladonna, the question of its real power is by no means settled. It was formerly recommended (as will be mentioned hereafter) as a phygogalactic; some regard it as a galactagogue (thus Berry, London Lancet, June, 1857, asserts that it promotes the flow of milk while it relieves tension and pain); while others explain this occurrence of a freer flow of milk as the first step in its action, the milk being ultimately dried up (Kingsford, London Lancet, Sept, 1858). Dr. Spring has suggested, that in many of the reported cases the subsidence of the inflammation was spontaneous, because he found belladonna quite ineffectual in true "galactorrhœa" (Boston Med. and Surg. Journal, Aug, 1858, p. 80); but Prof. Stillé, in regard to this view, justly concludes (Therapeutics and Mat. Med., ii. 47 & 48), that the general coincidence of results obtained by the treatment in question, and the rapidity of bringing them about, appear to render this objection inadmissible. From my own experience, we must deduce the opinion, that while belladonna exerts no influence upon the milk already in the breast, it does in some cases, although not very apparently in all, tend to diminish or suspend further secretion. A mode of employment which we have found very effectual is smearing the watery extract thickly over the whole breast, and repeating this application immediately after washing off the previous one, drying carefully by compression, and removing by suction or otherwise, as much of the milk in the breast at the time, as possible—once or twice in the twenty-four hours; or a plaster made by a cloth or kid smeared with the extract of belladonna, and with a hole for the nipple to enter, may be placed over the breast, either partially or entirely, thus allowing the breast to be drawn, or the child nursed without further trouble.

2. *Conium.*—Avicenna directs hemlock plasters against the secretion of milk; and it would seem that this was known and acted upon by the ancients generally. According to Guersent, the drug given internally has produced a like effect (Dict. de Med., article Ciguë). Dioscorides says that conium ex-

tinguishes the milk and prevents its appearance, and the development of the mammæ in virgins (Pereira's Mat. Med., Am. Ed., 1843. Vol. ii. p. 493). D'Outrepont (who will be again referred to under Phygogalactics) asserts that under the influence of conium the mammary gland ceases secreting, and sometimes will never again secrete milk. Richter is quoted by Stillé (Op. cit. ii. 376) as recommending it in cases where it is wished to arrest or suppress the secretion. We have never used it ourselves, and should be somewhat afraid that the gland would become atrophied, as has been known to have occurred; that conium has a powerful influence on the gland seems proved by Dr. Williams (whose cases see under the head of Phygogalactics).

3. *Iodide of Potassium.*—M. Rousset, of Bordeaux, published twenty cases, intended to show that when given to the extent of 8 or 10 grains, in divided doses through the day, iodide of potassium would moderate the excessive secretion of milk (Bull. de Thérap. lv. 38). Since then, many others have recommended it very highly for the purpose. Some give as much as ten grains, three times daily. Rieseberg relates the case of a woman who, owing to deformity of the nipples, could not suckle her children, but whose milk nevertheless continued to be secreted profusely. This occurred in her second and third confinements, and both times the secretion was arrested by the internal use of compound solution of iodine. (G. Phano.) Dr. T. Gaillard Thomas says of iodide of potassium given in full doses, and extract of belladonna painted around the nipple, in a lecture published in the American Medical Monthly, August, 1860: "These two remedies have found great favor with the vast majority of those who have tried them; and although I have seen them both fail in checking, or even in diminishing the secretion, I have much oftener in my own practice observed that benefit resulted from their use. I therefore advise you to treasure them in your memories, as means which will prove most serviceable in time of need."

4. *Salvia.*—Van Swieten records a case (Opera, xiv. 234) in which, after the child had been weaned, the secretion and a very troublesome dropping of milk continued. Various remedies were tried, but all in vain; the nurse grew leaner and

leaner every day; but the disorder ceased on the exhibition every three hours, of one, two, or three ounces of a strong infusion of sage. The extract of sage has been used as an ischogalactic with as much success as the infusion. Before we properly estimated the value of belladonna, we employed Ranque's liniment externally, and an extract of sage internally, in a case in which it was desirable to suspend the lacteal secretion. This was accomplished on the sixth or seventh day, no auxiliary treatment having been used. With this exception, we have never tried the sage, but would recommend it, though astringent, as a harmless agent, which certainly appears to exercise some control over the lacteal secretion.

5. *Camphora.*—Dr. Stillé, from whose work, as the most recently published on Mat. Med., we have several times quoted already, says (Op. cit. ii. 153): "Spirits of camphor are *very successfully employed to suspend the secretion of milk*, after parturition; and the oily solution may be applied by friction to disperse the mammary engorgements incident to this period." Now, much as we respect Dr. S. as a teacher, and as the author of undoubtedly the most practical and best text-book on Materia Medica existing in the English language, we can by no means indorse the first part (which we have italicized) of this statement. We find similar views of the effects of camphor promulgated by most authors, seemingly one following the other unquestioningly. We must say, however, that our experience is entirely contradictory to the assumption that camphor possesses any ischogalactic properties. What we have to say of its phygogalactic effects will be stated under the proper head.

6. *Digitalis*, *hyoscyamus*, and *tobacco*, are said by various authors to have been used with more or less success in arresting or suppressing the mammary secretion. We do not, however, find enough positive data to induce us to dwell on either of these articles at any length. Still, we must say, that the effect of the ung. tabaci have been full as marked as that from belladonna, when applied as a plaster in the manner directed for using the latter. We have never seen any constitutional effects from it as is seen from the tobacco poultice upon the testicles, although the effect of belladona similarly used is very marked upon the iris and pupil of the eye.

7. *Mentha Piperita.*—The essence of peppermint, externally applied, is with many practitioners in great favor, for arresting the secretion of milk. We have used it in many cases, and, while it failed in some, and in one it irritated the skin near the areola so much that it was very disagreeable, yet we are convinced of its marked efficacy. We have generally used it in the following proportions:

℞ Ol. menth. piperit., ʒjss.; Ol. ricini, ʒiijss.;
Ol. Bergamot vel jasmin., ʒiss.; Gum camphor, ℈ij.
M.

8. To complete this list of ischogalactics, after mentioning *coffee*, which has a marked effect in diminishing the quantity of milk, we must here again refer to the employment of external and internal strong astringents, which, as already stated, may act in this way.

B. II. Phygogalactics *are articles whose action tends to disperse the milk accumulated in the lactiferous tubes (epecially when it forms indurated tumors.)* [We are aware that both the term we have applied to this class of lactatics and its definition are liable to objections.] Phygogalactics somewhat correspond to eutrophics. Their action is supposed to be exerted on the system of nutrition, or specially on the absorbents. They are mercurials, the preparations of iodine (the tincture painted over the breast highly recommended by Dr. H. C. Stewart, Stillé, op. cit. ii. 907), bromine, the preparations of gold and silver, belladonna, conium, camphor, and chamomile. Belladonna has been long ago used as a resolvent of lacteal tumors by Alberti, Zimmermann, Autenrieth, etc.; Evers also recommended it in milk abscess and induration (Richter, Ausf. Arzneimittel. ii. 577), but whether it really does possess any phygogalactic, aside from its ischogalactic effect, we have not been able to determine. We rather doubt it, however. That conium possesses phygogalactic power has been especially shown in the experience of D'Outrepont (Clarus, Handbuch der speciellen Arzneimittellehre, 1860, p. 703) and Dr. S. Fr. Williams, of Deerfield, Mass. (American Journ. of Med. Sciences, vol. ix., p. 77). The latter employed at the same time, locally, powdered leaves of conium sprinkled on a poultice of

carrots, or of the pond lily, and internally the extract of conium, of which the dose was gradually increased until constitutional symptoms were produced. He reports six cases, some of which he describes as "cancers" and "real open cancer." Five got well, and one ended in death. Of camphor, we would here say, that while we do not believe it has any effect on the secretion of milk, we do not deny that it may act as a stimulant to the vascular and nervous systems, and promote absorption. It is possible that it would frequently be valuable as a phygogalactic. We cannot say that we have ever derived much effect upon the mamma from it, but many authors prominently ascribe to it such power. Among the formulæ recommended, we will mention that of Fuller for external, and that of Bories for internal, use. The former is as follows:

℞ Camphoræ, ℈ij.; Ammonii liquid, ʒij.;
Aq. theriacæ, ʒj.; Olei olivar., ℥ij.
M.

Bories:

℞ Camphoræ; Nitri acetici, ʒv.;
Kali nitrici, āā ʒij.; Roob sambuci q. s. ut ft. pil. 120. S.
Take two pills twice daily.

Chamomile flowers have frequently been brought forward as an efficient external application to prevent or remove suppuration; and it is very probably on this account that some practitioners employ it as a phygogalactic. Personally, we are not able to confirm the experience of Ozanam (Gazette Hebdom. v. 3, 1858); nor have trials with the *Species resolventes* of the Saxon Pharmacopœia (Herb. menth. pip., herb. organi, flor. cham., flor. lavand., flor. sambuc. āā ℥j.) given us a more favorable impression. But the whole subject of phygogalactics, and, indeed, as already observed, of lactatics, is involved in obscurity. We have presented it as lucidly as it was possible at present to do, very much assisted by the Germanic researches of our friend, Louis Elsberg, M.D., to whom we must confess acknowledgments, and earnestly invite to its investigation every "working aspirant for fame." It is a field in which a real contribution to pharmacology may be made, well

worthy of attention, and promising positive results both interesting and important.]

§ 9. *Inflammations of the Breast.*

A.—*Inflammation of the Sub-cutaneous Cellular Tissue.*

This form of inflammation of the breast presents, in an anatomical point of view, the general characters peculiar to phlegmonous inflammation. It rarely exists by itself during its whole duration, but ordinarily it is accompanied with an analogous affection of the glandular parenchyma. The inflammation may extend no farther than the cellular tissue situated below the areola (sub-areolar phlegmon); in such cases it either soon becomes circumscribed, or it extends over a greater portion of the breast.

Sub-areolar phlegmon is only met with during pregnancy and lactation; it accompanies excoriations, cracks and ulcerations of the breast, while diffuse phlegmon is observed without any connection with the generative functions, in consequence of external injuries, the action of cold, etc.; it is more rarely the expression of a constitutional disease, such as pyæmia, scrofula, etc. Finally, it is also met with conjointly with certain neoplasms which are developed in the breast. We have already said that it is ordinarily connected with glandular inflammations which terminate in suppuration.

The sub-areolar phlegmon is characterized by a deep red color, afterward livid, and by the extreme tumefaction and sensibility of the areola; at the end of three or four days the tumor becomes accumulated at one point, fluctuation is felt, and the abscess, if it is not artificially opened, breaks at the end of six or eight days; generally it soon closes completely. In the other parts of the breast the inflammation extends more over the surface and presents all the characteristics of ordinary phlegmon; it is accompanied by a very violent fever and forms more extended purulent collections; furthermore when the gland itself is not interested, it ordinarily terminates in a cure at the end of the second or third week.

The first thing to do is to make an issue, as soon as possible,

to the accumulated pus; for this purpose the diseased part is for a time covered with cataplasms. The sub-areolar inflammation soon forces the nurse to stop the nursing which occasions violent pains; while in phlegmons of the breast this is not always necessary.

B.—*Inflammations of the Cellular Tissue situated between the Gland and the Thorax.*

The sub-mammary phlegmon may be primitive or it may accompany glandular and superficial inflammations. It has been observed as a consequence of caries of the ribs, of empyema, or of an abscess of the lungs which had perforated the walls of the thorax; finally, it may also pertain to the class of abscesses from congestion.

The affection generally commences by light chills, often repeated, by a sensation of weight and tension in the breast, which is neither red nor very sensitive to the touch. Later, the pains increase, and when a considerable abscess is formed under the gland the latter appears when pressed against the thorax, as if reposing upon a bladder full of liquid. At this epoch there is an œdematous tumefaction formed all around the breast, accompanied by redness of the skin. This abscess often attains to a considerable extent, and ordinarily opens at some point in the circumference of the breast. More rarely the pus makes its way through the glandular parenchyma, forming several fistulous openings, or it spreads toward more distant parts, with or without caries of the ribs. The affection may have an unfavorable termination when it is complicated with pleurisy, with perforation of the intercostal muscles, and of the pleura, with effusion of pus between the two layers of this membrane, or in the anterior mediastinum, or, finally, when it is united with pyæmia.

The diagnosis being very obscure at the commencement of the disease, the treatment at this period cannot differ from that of glandular inflammation, which we will speak of hereafter. When once the abscess is formed it is requisite to perform puncture as soon as possible. It is best to make the incision upon the most depending portion, cutting downward and outward every time that a well marked fluctuation does not

designate another point as more convenient for the incision. To prevent new purulent collections, the wound should be kept open a long time; the best means for attaining this is to place therein a tube of caoutchouc. The occlusion of the cavity of the abscess will be seconded by the application of a compressive bandage.

C.—*Glandular Inflammation.*

Pathological Anatomy.—The inflamed mammary tissue appears hard and dense to the touch; it has lost its elasticity, it is very friable. On section the cut surface is of a deep red. When the disease is developed during pregnancy, or the puerperal state, the lactiferous ducts are dilated at certain places and gorged with milk, while at other places they are compressed by the infiltrated cellular tissue; their internal surface generally presents a catarrhal redness. The exuded blastema may, during the course of the disease, be organized or transformed into pus or sanies, and thus form those abscesses called parenchymatous, which sometimes attain the size of a man's fist, and often communicate with the half destroyed lactiferous canals. In such cases a microscopic examination of the contents shows, beside the elements of pus and blood, globules of milk and colostrum. When the suppuration is very extended, it produces atrophy of the gland, **mammary phthisis.**

Causes.—Mastitis is ordinarily observed only at the epoch of the functional activity of the mammary gland. When it is met with out of the puerperal state, it then coincides with certain periods of the development of this organ, as for example in the newly born, at the epoch of puberty, of menstruation, etc., or it is the consequence of an exterior violence, of a subcutaneous phlegmon, or, finally, of a sub-mammary abscess. During pregnancy and lactation the deviations of regimen, colds, violent emotions, scrofula, arthritis, etc., are mentioned as causing this affection; but the most important and most frequent cause is the accumulation of milk in the lactiferous canals, produced by an incomplete flowing of this liquid, which irritates the walls of the ducts and the cellular tissue which envelops them, occasioning a flux of the blood there, a hyperæ

mia, and, finally, the exudation of which we have spoken. This is why mastitis is frequently developed in mothers who do not nurse their children themselves, or who wean them too soon; as, also, in those who from defective development, excoriations or ulcerations of the nipples have troubles in lactation. The disease is declared most frequently during the first days after labor, more rarely at the epoch of weaning or during gestation.

Symptoms.—Mastitis ordinarily commences with symptoms of a congestive tumefaction of one or several of the lobes of the gland. The corresponding part of the skin is puffed up, very tense, of a bright red, very warm, and excessively painful. The infiltrated lobes are irregular, lumpy and very hard; the axillary glands are sometimes sensibly engorged. In proportion as the skin, at first of a bright red, becomes more livid, the fever, which may be very violent, increases as well as the pain; the fourth or fifth day fluctuation is perceived, and the seventh or eighth day the abscess breaks if it has not already been opened. The orifice which is spontaneously formed being very small, the flow of the pus is soon impeded, and then exerts an irritant action upon the neighboring tissues, and the inflammation may sometimes extend from one nipple to the other, until finally almost the entire glandular tissue is in a state of suppuration; ordinarily new fistulous passages are then formed, which at last perforate the skin. After the occlusion of the exterior extremity of the fistulæ, for which it is sometimes necessary to wait a long time, an induration remains which is due to the infiltration of the neighboring tissues, and lasts sometimes for months and years, or may even never disappear entirely.

It is more rare for the progress of puerperal mastitis to be less rapid, without fever and without pain, and in such cases it ordinarily terminates by an extended mortification of the glandular parenchyma, and may produce death in consequence of pyæmia. The inflammation of the breast, out of the puerperal state, is limited generally to a few or to one of the lobes of the gland; therefore it has a more rapid progress.

Prognosis.—Puerperal mastitis constitutes a very painful, very obstinate disease, but ordinarily it does not put life in danger; the less favorable cases are those which affect delicate,

debilitated females, with relaxed and pendent breasts, when several lobes separated from each other are attacked at the same time, and when several milk ducts of large calibre open into the cavity of the abscess.

Treatment.—In the period of congestive tumefaction the treatment consists in evacuating with care the milk retained in the gland, and then applying the compressive bandage of Seutin, and in administering a purgative salt. If, in spite of this, an abscess forms, we should early give an issue to the pus by an incision of about an inch in length. If, after this operation, the breast is tumefied anew, and if the inflammation extends to other lobes of the gland, it is necessary again to have recourse to compression, only we should take care to make an opening in the bandage where it covers the incision of the skin to allow the free escape of pus. Afterward we should prevent the premature occlusion of the wound by placing therein a small oiled compress. Emollient cataplasms should be continually applied over the bandage and renewed at least every second day to examine the condition of the breast; if the spontaneous openings are too small they should be early enlarged by means of a bistoury; the cataplasms should be continued until the pain and the inflammatory redness have completely disappeared. The induration which remains after the cure easily yields to the use of an iodized ointment, and to the continued use of moderate heat, which we may obtain by covering the breast with a discutient plaster. When every symptom of inflammation has disappeared, and when the abscess is very slow to close, we may have recourse to injections of a diluted solution of the tincture of iron, or of nitrate of silver. The possibility of a communication of the abscess with one or several lactiferous ducts contra-indicates nursing with the diseased side. [A method much vaunted by some practitioners in this country, both as a preventive of suppuration in the early stage, and for absorption of the indurated tissue in the second, is pressure applied by binding tightly upon the breast appropriate pieces of prepared sponge. When these are safely secured they should be moistened with water and thus a very considerable pressure is made upon the breast. We have obtained similar

good results from elastic rubber bands passed over the breast, and when that has not been found applicable, from strips of the same material attached to strips of cloth passing entirely around the chest.]

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§ 10. *Ulcerations of the Breast.*

We make no mention here of the ulcers which form upon the breast in consequence of the degeneration of certain neoplasms (cancer, sarcoma, cysts, etc., or of the localization of a constitutional affection, such as scrofula, syphilis, etc.) We will only consider the idiopathic ulcerations peculiar to the breasts of woman, and due to their particular anatomical and physiological relation.

A.—*Ulceration of the Nipples.*

The most frequent seat of ulcerations of the nipple is in the little depressions situated upon its point and in the groove which surrounds its base. Several forms are distinguished. Simple **erosion** is produced by the superficial falling of the epidermis which covers the nipple; the excoriation takes place either in a single point of the size of a grain of millet to that of a lentil, or, which is more rare, the nipple loses its epidermis over the whole extent of its surface. The diseased parts are of a bright red, sometimes giving to the touch the sensation of velvet; the surrounding tissue is humid and softened. When attention to cleanliness is neglected, its ulcerated surface is covered with thin scabs of a yellowish red, and when they are removed a slight hæmorrhage results. In these unfavorable circumstances the loss of substance con-

stantly extends deeper, the exudation which is deposited in the dermis, inflamed and despoiled of its epidermis, softens, mortifies the tissue, and may occasion the formation of linear ulcers, from two to four lines broad, ordinarily designated under the name of **fissures** or **cracks;** sometimes **fistulous** ulcers are developed which penetrate from the summit of the nipple toward the base to the depth of a third to two-thirds of an inch, being superficially covered with a thick crust, which when it is removed discloses a cone of quite thick pus. In rare cases it happens that a part or the whole of the surface of an ulcer of the breast is covered with fungous vegetations, of a livid red and of the form of a cock's comb, easily bleeding, and suggesting by their analogy with condylomata, the fear of a syphilitic affection.

All these forms of ulceration are met with most frequently during the period of lactation, and have their primary cause in the tumefaction and softening of the whole nipple, which takes place during pregnancy, and which renders the fall of the epidermis more easy. To this cause is united the continual contact of the nipple with the milk which trickles through the openings, and with the saliva of the nursling; the mammary papillæ are often pinched and retained by the gums of the child, which circumstances sufficiently explain the frequency of the affection which now occupies us. Further, we should not forget that the action of the cold air upon the moist nipple left exposed may also produce cracks of the epidermis; and when these already exist they cannot but be aggravated by the frequent sucking of the nursling, by the negligence of cleanliness, and by a multitude of other faults of hygiene. It is among primiparæ that these ulcerations are the most frequently observed when the nipple is imperfectly developed, and but slightly projecting; still it is not rare to meet them in subsequent pregnancies.

This affection, so little important in appearance, renders nursing excessively painful, sometimes it even becomes impossible for the mother to fulfill this duty; she is forced to wean her infant, which has often to be done suddenly, and at a period when the secretion of the gland has attained its greatest activity. The milk accumulates in abundance in the lactifer-

ous canals, thickens and thus occasions all sorts of alterations in the mammary gland (mastitis, ectasia of the ducts, galac tocele, etc.)

In treating this disease from its commencement we sometimes succeed in preventing its ulterior development; still at this epoch all means sometimes fail, and it is necessary to remove the nursling to escape greater dangers.

We recommend, above all, lotions of cold water, brandy mixed with water, a feeble solution of tannin, or of nitrate of silver. When this does not suffice to produce a cure, we rub the ulcerated surfaces with the tincture of myrtus or we cauterize them once a day with a crayon of nitrate of silver cut down to a point. In the intervals compresses dipped in cold water, or in a solution of nitrate of silver, are to be applied. During the treatment the breast should be less frequently given to the child, and the nipple should be covered with the end of the elastic breast, or with the scooped out extremity of a calf's teat, to preserve it from lesions on the part of the child. If the milk should accumulate too much in the gland we should resort with much circumspection to some suction instrument, as for example a bottle of caoutchouc.

B.—*Ulcerations of the Areola.*

The ulcerations of the areola are developed by the extension of the ulcerations of the nipple, or they exist primarily upon the areola, ordinarily as a consequence of some exanthema.

Thus it is not rare that the areola becomes the seat of an acute or chronic **eczema.** It is then partly covered with recent vesicular eruptions, and partly with browish scabs, more or less thick. When these are removed, we find beneath a quite considerable number of small ulcers of the size of a grain of wheat to that of a pea. Up to the present time, we have only observed this affection in pregnant or nursing women, and they sometimes attain such a degree that the infant refuses to suck the moist, fetid nipple, covered with rough scabs. Generally, lotions and fomentations with Goulard water, or with a solution of nitrate of silver, are recommended, and frictions with an ointment of white precipitate. At present we employ

with the best success a solution of caustic potash, applied with a brush upon the diseased parts; two parts of this caustic are dissolved in two hundred parts of water. A little of this liquid is applied twice a day with a swab of lint, then left to dry, and afterward washed with a sponge moistened in cold water. In the intervals, the areola should be washed several times with cold water, and covered with a small moist compress.

Herpetic eruptions are more rare upon the areola; they do not ordinarily remain limited to this part, but they also extend to the nipple and the remainder of the breast; they cause a burning pain and incessant and very troublesome itching, which often compels the patients to rub and scratch themselves; then there are formed, besides the recent eruptions, numerous small ulcers covered with thin scabs. From our observations, we highly recommend, besides the cold lotions repeated several times a day, the application with the brush of a weak solution of nitrate of silver.

§ 11. *Neoplasms of the Breasts.*

A.—*Sarcoma and Cystosarcoma.*

Pathological Anatomy.—Sarcomata are circumscribed tumors, and are generally rooted tolerably deep in the parenchyma of the gland, varying from the size of a pea to that of a hen's egg, and larger; their surface is ordinarily irregular, granular. On section, their surface has a yellow or a light red color; their consistence is rather soft, and by pressure they permit a serous mucilaginous, or liquid and transparent fluid to exude. By microscopical examination it is observed, as Meckel well describes it, that the little granulations which are observed everywhere upon the surface of a section, are formed by simple or ramified papillæ, suspended freely in an inclosed cavity; they almost completely fill this cavity, and in the interstices there exists but a small quantity of mucous serum. These papillæ are, in the first place, composed, upon their exterior surface, of a simple layer of smooth epithelium, of its own peculiar very thin coat situated immediately below the epithelium, then of a layer of newly formed and gelatinous cel-

lular tissue, and finally, of an internal membrane, which almost always contains a net-work of numerous blood vessels, and is constituted by a very dense fibro-cellular tissue, in which are often scattered very fine fat globules. It is not yet recognized whether, as Meckel believes, these papillæ are formed by the inversion of the glandular follicles in the cavity of a milk duct, or if, after the opinion of Birkett, these vegetations are developed within a cyst outside the glandular tissue. In our clinical lectures [1] upon the maladies of the breast, we have endeavored to prove (page 159) that we are not authorized to admit that the internal wall of the milk ducts, or, on the other hand, that of a cyst situated in the interstitial tissue, can alone constitute the base upon which the sarcomatous tumors of the breast develop; we have also attempted to prove that these papilliform excrescences ought not at all to be taken for an excess of development of the glandular parenchyma, multiplying in the cavities which are formed, but that we have to do here simply with the formation of papillæ.

We know that the sarcomata frequently contain cysts of various size, from thence the name of cystosarcoma, which is given to this variety. When the tumor presents the general structure of sarcoma, such as we have just described, and when it contains interiorly one cyst, or more the internal wall of which is extremely smooth, or only sprinkled with some isolated papillary excrescences, we have the **simple cystosarcoma.** When the cysts contain others of more recent formation, and much smaller, adhering immediately or by a small pedicle to the wall of the primitive cyst, the tumor is called **proliferous cystosarcoma.** Finally, the **phylloid cystosarcoma** (**cystosarcoma phylloides**) constitutes a bossellated and irregular tumor, formed of a fibrous and compact mass, around which a large cyst or several small tumors are found, in which multiply sarcomatous, red, vascular pimples, flat or tuberous, in the form of a cock's comb, pedicellated or with a large base, swollen at their free extremity, sometimes also developing in the form of a cauliflower; at other times they are fringed, resembling villosities. According to the researches

[1] Third volume of the Klin. Vortræge of Kiwisch, published by Prof. Scanzoni

made up to the present, the sarcomata and cystosarcomata of the breast are but different degrees of development of the same neoplasm. Whether the sarcoma is primarily formed in a milk tube, or in the interior of a cyst situated in the interstitial connective tissue, it is always susceptible of all the metamorphoses peculiar to these tumors. It may then, according to circumstances, transform itself into a simple, proliferous or phylloid cystosarcoma.

Causes.—The tumors of which we are speaking are most often found in women who have passed the fortieth year, at an epoch when the sexual organs in general lose their physiological activity, and have a greater tendency to produce **pseudoplasmata.** It is said that sterile women are then most exposed to them, and that difficulties of menstruation increase the predisposition. It is believed that exterior violence must play a certain part in the etiology of these tumors, for we know that such lesions often determine sanguineous extravasations into the parenchyma of the breast; thence one of the causes of the formation of cysts. Finally, it has been observed that when the first germs of a sarcoma already exist, the congestion arising from menstruation, pregnancy and nursing, favor the rapid growth of these tumors, and hasten the metamorphoses which we have indicated.

Symptoms.—The disease generally commences by the formation of a very hard, indolent, circumscribed tumor, which at the epoch of menstruation ordinarily becomes the seat of a disagreeable pressure or a slight tension; the color of the integuments which cover the tumor, the aspect of the nipple, and of the areola, undergo no alteration—months and years may pass without these phenomena undergoing the least modification. At other times the tumor takes on a slow but incessant development. It becomes continually more circumscribed, rises toward the skin, loses its mobility, and sometimes becomes the seat of violent pains. The skin, which is constantly more distended, becomes white or livid; it is not rare that on inspection alone these irregularities, protuberances and depressions of the neoplasm may be recognized. To the touch, the tumor is at certain parts hard as a board, and so to speak, angular; in others, on the contrary, it is elastic, soft, and even presents a

distinct fluctuation; but in those cases it is not a case of simple sarcoma, but of one of the varieties of cystosarcoma. These growths may attain a more considerable size, than any other tumors which affect the breast. Whatever be their dimensions, they never exert any injurious influence upon the general health; the patient, at the most, perceives a febrile excitation and sleeplessness from the pains. In some rare cases the superficial wall of a cyst and the skin which covers it ulcerate, the liquid escapes outwardly, and the orifice closes; still, the cyst ordinarily soon forms anew. Cases have been observed where this ulceration is often repeated upon different points of the tumor. Sometimes the wound does not close again, and a number of fungous vegetations are developed upon its borders, which give the tumor the malignant aspect of a cancer.

Diagnosis.—The distinction of sarcomas from other solid tumors of the breast is one of the most difficult tasks of the practitioner, for we do not possess any sufficiently certain data to serve for the basis of a differential diagnosis of these neoplasmata. This is much more easy in that which relates to cystosarcomata, for it is rare that any other tumor acquires so considerable a volume, and in extreme cases an exploratory puncture may be of great utility. Furthermore, the important thing, for the practitioner, is to determine whether there is cancer or not. In this connection we shall arrive at a sufficiently certain result, if it is considered, first, that sarcomata and cystosarcomata are always purely local affections, which never disturb the great functions of the organism; secondly, that the lymphatic ganglia of the axillæ never undergo any modifications; and thirdly, that the development of the tumor is always very slow. Moreover, the enormous volume sometimes obtained by these neoplasmata, the possibility of recognizing their lobulated structure, the presence of considerable cysts (with all the phenomena of well marked fluctuation), which by puncture allow a serous liquid to flow out—all are symptoms which will permit us, if not always, at least in the majority of cases, to distinguish the tumors which we are now considering from those of a cancerous nature.

Prognosis.—Although sarcomata and cystosarcomata belong

to the category of benign tumors, and numerous observations teach us that they may be removed with entire success, and without there being subsequent relapse, still, we should recognize that it is not rare to see them return after their extirpation, either at their primitive seat or in other often quite distant parts of the body; so that the surgeon who decides to operate is not at all authorized to give an absolutely favorable prognosis. Virchow is perfectly right when he says that the faculty of becoming general is proper to all tumors, and it is, without doubt, that sarcomata, in particular, may be propagated in the course of the lymphatic vessels, or also in the contrary direction, from one gland to another, without immediate communication. By new researches, it is proved in quite as evident a manner that sarcomata and cystosarcomata may sometimes be transformed into tumors of a cancerous nature, for it is established that cells can be formed in the interior of a sarcoma or cysto-sarcoma, which, in developing, constitutes a perfectly characterized cancerous tumor. In fact, it is not rare to meet in mammary abscesses the combination of cancerous and sarcomatous masses.

Treatment.—All the therapeutic means advised against the tumors we are now considering, such as preparations of iodine, antimonials, mercurials, conium, chloride of sodium, chloride of lime, fresh water and soap baths, or sea baths, are shown to be completely powerless. It is only at the commencement of these affections, and when the diagnosis is still obscure, that an attempt with any one of these means, and in particular with iodized preparations, would appear rational; still, it is not necessary to prolong it too far, for if the tumor has time to develop itself, the operation which finally becomes inevitable, is thereby only rendered more grave, more dangerous, and more unlikely to be successful. It is always better to decide to operate too soon than too late. For the details of the operation, we refer the reader to what we shall say hereafter upon the treatment of cancerous affections of the breast.

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B.—*Simple and Composite Cysts.*

Cysts, independent of other neoplasmata, are sometimes developed in the breast; these are sometimes simple cysts (unilocular), sometimes composite cystoids (multilocular).

Pathological Anatomy.—The simple cysts are most frequently found in the subcutaneous cellular tissue, more rarely in the glandular parenchyma, properly so called, or in the submammary cellular tissue. Their volume varies from the size of a pea to that of a man's fist; the walls of the smallest are thin and almost transparent; those of the larger are much thicker, and sometimes sprinkled over with calcareous deposits; the contents are either serous, colorless, transparent, albuminous, or else are composed of a gelatinous, colloid, thick and viscous matter. These cysts but rarely contain fat or hair; most often blood is found in them, in a more or less altered condition. Ordinarily, there does not exist in one breast but a single cyst of this sort; still, several have sometimes been found together. They insensibly approach and afterward touch each other, when they may be taken for a composite cystoid.

The **composite cystoids** may also be developed in the most varied points of the breast; still, as they increase rapidly, they soon take the place of the glandular tissue, which becomes atrophied to such an extent, that in voluminous tumors it is with difficulty that traces can be found of it. The contents of the various cysts in one cystoid often differ very much. While one of them incloses an entirely limpid fluid, others contain degenerated blood; others a fatty or colloid mass. There are even some which are filled with a ball of hair; teeth have also been observed in them. The surrounding glandular tissue becomes atrophied by compression. Sometimes, when the cysts are still small, but are rapidly developed, they are found congested, and contain a considerable quantity of blastema, still liquid, or already half organized. In these cases the organ entirely, or one of its parts, is very compact and hard to the touch. We think that cases of adhesion of the tumor to the skin are very rare.

Symptoms and Diagnosis.—At the outset of this malady, and often also in its consecutive stages, the symptoms are the

same as those which are presented by sarcomata, cystosarcomata, and other benign mammary tumors. Still, there are also cases where the diagnosis may be established with entire certainty. A characteristic phenomenon of simple cysts is, that so soon as they have attained the size of an apricot, when they inclose very liquid contents, and when they are not too profoundly situated in the glandular tissue, they present a very marked fluctuation, which distinguishes them sufficiently from solid tumors, and even from cystosarcomata. When they have this size, they are generally hard and lobulated to the touch. It is only later that these latter tumors present a fluctuation, which, however, is never so distinct as in simple cysts. We may distinguish these last from the first kind of galactocele, which we have above described, in that the milky tumor is always rapidly developed in the space of a few days, and at an epoch when some trouble may be recognized in the nursing, while the true cyst increases but very slowly, and has not the relation of causality with the lactation. We think that the clinical distinction of cysts filled with a thick, fatty, doughy material, from partial glandular hypertrophies, sarcomata, and cystosarcomata, is often quite impossible. This is still more the case with composite cystoids, which are very frequently confounded with the various forms of cystosarcoma and with cancerous tumors. What would distinguish them from the latter is their little tendency to contract adhesions with the skin, the absence of the alterations of the nipple peculiar to cancer, and of the tumefaction of the axillary glands, as well as the great tendency of cancer to ulcerate. They differ from the second form of galactocele by their etiology and their progress, and by the absence of inflammatory phenomena. If in any case there is still any doubt as to the true nature of the tumor, an exploratory puncture will completely enable us to decide with certainty.

Ordinarily, it is only the commencement of these tumors which is perceptible to the patient; there is an inflammatory tumefaction of a part of the breast or of the entire organ, accompanied by a slight dragging or a pricking pain. These symptoms often disappear for a long time, and are only again represented when the tumor has attained to a considerable

volume. The general state of the health is not usually affected by the local affection, which is more troublesome than painful and dangerous, with the exception of rare cases where the tumor becomes enormous.

Etiology, Prognosis and Treatment.—It has been wished to connect these neoplasmata with exterior violence, with anomalies of menstruation, sterility, etc. We have observed nine women suffering from this affection; they were all perfectly regular in their menstrual functions, and could assign no cause for their trouble; still the analogy with other organs would seem to indicate that a sanguineous effusion into the breast, occasioned by traumatic violence, or some other cause, might give rise to the formation of cysts.

These tumors are benign, insomuch that they are not connected with any morbid state of the organism, that the elements of the surrounding tissue do not undergo any metamorphosis of a malignant character, and in that the local affection is susceptible of being usually cured by mechanical or therapeutical means, and always by an operation.

In the treatment of simple cysts we give the preference to injections of diluted tincture of iodine, or a solution of nitrate of silver followed by methodical compression of the breast. The procedure recommended by many surgeons, which consists in opening the cyst by means of a bistoury, afterward placing in the wound pieces of lint smeared with an irritating ointment, is much more grave and much more painful; hence, we think that we should not have recourse to it, except when injections have not succeeded. For the composite cystoids, and for simple cysts with thick, colloid or fatty contents, the extirpation of the entire tumor is the only proper procedure.

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C.—*Acephalo Cysts.—Hydatid Cysts.*

Some observations, few indeed it is true, but perfectly

authentic, are found in the annals of science, which proves the existence of these neoplasmata in the breasts. They prove at the same time that the diagnosis of one or more hydatid cysts found in the breast, and their distinction from the other forms of cysts of which we have spoken is completely impossible so long as the contents of the tumor have not been examined. Besides compression and irritating injections into the sac of the acephalo-cysts, the extirpation of the neoplasm is here also the surest means of arriving at a radical cure.

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D.—*Osseous and Cartilaginous Tumors.*

It is excessively rare to see cartilaginous and osseous deposits in the breast. They form very hard, irregular tumors, lobulated, presenting often projections at an acute angle. They increase but very slowly in size, and are the seat of violent pains on pressure or at the period of the courses. The general state of the health does not suffer except when the tumor has attained very considerable volume or when it is ulcerated. Extirpation, which is inevitable, will, we think, always be crowned with success; up to the present no one has noted a relapse.

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E.—*Cancerous Affections.*

Pathological Anatomy.—The breast may be the seat [illegible] principal forms of cancer, which we will now c[illegible] these are, **fibrous cancer** (scirrhus), **medullary** [illegible] (encephaloid), and **colloid cancer.** In describing [illegible]ia, will also mention their varieties, the **cystocarcino**[illegible] the **notic cancer** and **reticulated cancer.**

Fibrous cancer is the most frequent form; the [illegible] sub-narily irregular tumors sprinkled with tubercles [illegible] ion, and voluminous, quite clearly defined, of a cartilaginou[illegible] of the

and which are distinguished from the encephaloid principally by their compact nature and by the small quantity of fluid which they allow to exude on pressure. When the cancer is developed in the form of a single tubercle surrounded by the normal substance of the gland, it may often remain stationary for years, in the state of a tumor of the size of a pigeon's egg to that of a hen's egg, while it rapidly extends to the whole organ and may attain the size of a child's head, when it commences by a very extended cancerous infiltration. We suppose the histological characteristics of fibrous cancer are known to our readers; still, we will mention, that on section the surface presents sometimes grey or yellowish streaks formed by the more voluminous fibrous fasciæ, crossing each other in the form of a net-work, and constituting the **reticulated scirrhus.** The fibrous cancer is ordinarily, at least in its central parts, not very vascular. The peripheral parts, especially those looking toward the skin, are richer in blood vessels. Lobules of atrophied glandular tissue are often also found in its substance, and remains of milk ducts incrusted with calcareous salts; or dilated, varicose, sinuous, and filled with thick secreted matter, and with epithelial cells. While the surrounding parenchyma is atrophied by compression, the skin which covers the cancer is little by little destroyed. Then, according to the researches of Wedl, the sub-cutaneous vessels are engorged in the neighborhood and around the periphery of the tumor. ney become varicose, and the cancerous infiltration, contin-ly increasing, at last invades and destroys the skin. Or the ter with which the skin is infiltrated is puriform and con- in great quantity molecular granulations of the most l dimensions, mingled with numerous isolated fatty drops. n as the neoplasm has invaded the skin, an ulcer is l, at the base and upon the borders of which the cancer es partly to develop itself, taking on the medullary r, while in other parts there are formed cicatricial de- by the retraction of the pseudoplasm.

dullary cancer ordinarily co-exists with fibrous can- listinguished therefrom by its softer consistence, by vascularity, by the quantity of fluid which flows pon pressure, by its always bossellated, mammillated

surface, and by the frequent presence of cysts in its interior. On section, the surfaces of the peripherical portion are very rich in blood vessels, while toward the centre the tumor presents the most varied shades from a yellowish white to a red or brown. The deep color, brownish, grey, or very dark blue, which is sometimes observed, is owing to a peculiar pigment inclosed in its cells, which has given to this variety the name of **melanotic or pigmentous cancer.** In medullary cancer, we often find cyst-shaped cavities formed by the partial destruction of the fibrous fascia of the woof of the tumor; the areolæ are enlarged and filled with fat, with molecular granulations, and with cells which have undergone fatty degeneration; the walls of the cyst are smooth or covered with vegetations which project into its cavity. This modification is generally known by the name of cystocarcinoma.

The **alveolar,** or **gelatiniform cancer,** is ordinarily met with in the breast, in connection with the other two forms, and is characterized by the more distinct form of the areola of its woof and by the great quantity of gelatiniform blastema which the tumor contains.

Most frequently it is the superficial lobe of the gland which is the primary seat of cancer. Hence, ordinarily proceed prolongations of variable length, which penetrate into the adjacent sub-cutaneous tissue. At other times the neoplasm commences to develop in the centre of the glandular parenchyma, and is slowly infiltrated throughout the gland. It is rarer that cancer is in the first place declared in the cellular tissue which connects together the lobes of the gland; in these cases it sends forth on all sides radiating and diverging fibrous fasciæ (**ramifying cancer**). Sometimes the primary seat of the neoplasm is found immediately below the nipple and its areola, in the cellular tissue which connects together the excretory ducts of the gland, and in the milk-ducts themselves; or it originates in the sub-cutaneous cellular tissue, in the skin of the nipple, of the areola, or of some other part of the breast (**cutaneous cancer**); the rarest form is that where the disease commences in the submammary cellulo fibrous tissue.

Generally the cancer of the breast is a primary affection, and it often happens that at a more or less advanced period of the

mammary affection, we see an analogous malady declared in other organs. Ordinarily, there is but one diseased breast, yet the passage of the cancer from one breast to the other is sometimes observed; the lymphatic vessels appear to be the organs of the transmission, at least in certain cases of this kind, a varicose lymphatic vessel has been seen running from one organ to the other; the development of the affection in the second breast is, it is said, much favored by the operations practised upon the one first attacked.

In the cadaver of women who have died from cancer of the breast, we ordinarily find secondary cancerous affections of various organs, a marasmus, a general atrophy, serous accumulations in the sub-cutaneous cellular tissue, especially in that of the arm of the affected side; serous effusions in the chest and abdomen, in the pericardium, between the folds of the arachnoid; a more or less extended osteomalacia; and when death has occurred shortly after an operation performed upon the breast, a purulent exudation in the pleura of the affected side, or an erysipelatous inflammation in the neighborhood of the wound.

Etiology.—Without doubt the breast is one of the most frequent seats of cancer; still its frequency seems to differ very much according to places and localities. It is most often met with between the fortieth and fiftieth year. Hence, it has been asked if this affection had not some connection with the critical age. According to researches up to the present we think we may answer in the affirmative; for, considering how frequent it is that the breasts become the seat of quite intense hyperæmias at the period of the anomalies of menstruation peculiar to the turn of life, we are led to believe that these unaccustomed and often repeated congestions give rise to an excessive nutrition, and to the development and propagation of cells. In consequence of the alterations of the sanguineous and nervous systems, which, without being perfectly known to us, always accompany the modifications which take place in the genital sphere, these cells undergo certain alterations in their contents which give rise to the development of neoplasms which are essentially different both in their own origination and in their other relations from the primary tissue to the affected organ.

Much has been said of the hereditary transmission of cancer, and we must allow that it is not rare to see a mother and her daughter succumb to the disease; cancer has even been propagated to the third generation. It has also been observed that women with dark hair of a brown tint, and having a lively, sanguine temperament, were more often affected with the malady of which we are speaking than blondes. Perhaps we should seek for the cause of this unfortunate privilege in that, with the brunettes, all the sexual functions are usually more active, and that the congestions which accompany them, in all the organs of generation favor the development of pseudoplasmata. It is to be remarked that cancer in general, and that of the breast in particular, is more frequent in cities than in the country, and all rigorous observers are united in saying that depressing emotions are not without a certain importance in the etiology of this disease. Birkett has proved by authentic figures that sterility cannot be considered as a cause of mammary cancer. When we reflect upon the very profound modifications of development and formation which pregnancy and the puerperal state produce in the interior of the mammary gland, we are astonished that for so long a time these functions have been regarded as preservatives against cancerous affections. As for the influence of exterior violence upon the breast, our experience has taught us, that in effect, cancer is developed quite often at the place of lesion after a contusion, a blow or pressure. Still, we should not forget that violence is only an occasion for women to examine with more care the wounded organ, and that a hardness or a tumor already present, for a long time, might easily, if then first discovered, be attributed to the traumatic action. Furthermore, we have above mentioned, that other mammary tumors may be developed in consequence of violence, and we have also spoken of the possibility of the metamorphosis of a benign tumor into one of a malignant nature, although at present there exists no well-established case which tends to prove this transformation with complete evidence.

Symptoms.—Cancer of the breast may be divided into three periods; the first commences with the appearance of the primary symptoms of the disease, and terminates when the

integuments commence to take part in the alterations of the deeper layers; the second period comprehends the time that the cancer takes to pierce and to propagate itself in the neighboring vessels and in the lymphatic ganglia; finally, the third period is that of ulceration, of mortification, and of the general alterations which at length overwhelm the whole organization.

First Period.—The patient sometimes accidentally discovers a small indurated place in the breast, very limited and as yet completely indolent; she is alarmed although in perfect health at the subsequent rapid growth of the swelling. It becomes insensibly irregular, bossellated, loses its clearly defined limits by the tumefaction of the surrounding tissues, it becomes painful at certain moments, especially about the epoch of the courses, constantly rises nearer the skin, which it pushes before it, being elevated in the form of a rounded tumor without visible discoloration. The primary tumor may thus, by its own development and by the formation of new tubercles which are slowly confounded with it, attain the size of an egg, of an orange, or even of a man's fist (**cancer occultus.**) Afterward the skin which covers the neoplasm becomes rosy or of a livid red; it no longer slides over the surface of the tumor when we attempt to raise it: it seems, on the contrary, to enter into the gland. Violent lancinating pains, traversing the breast in every direction, deprive the patient of repose and sleep; the strength diminishes, the body emaciates.

Second Period.—At this epoch the axillary glands of the diseased side tumefy and become hard and painful. The patient feels a permanent sensation of smarting, twinging, tension, pressure, etc., in the breast and its vicinity. The diseased part is excessively sensitive to the least touch. The skin becomes of a deep red; sub-cutaneous veins become visible; the nipple becomes less projecting, and at length forms a hollow of a funnel shape, which occurs because the peripheral vegetations are elevated all around the nipple (which cannot follow it by reason of the adhesions to the milk-ducts), and finish by overlooking it; or because there is a real contraction of the nipple due to the fact that the cancerous matter is deposited between the excretory ducts, dis-

tending and separating them, and thus at length retracting the nipple within itself. Finally, a bluish spot appears upon one or several points on the tumor, projecting beyond its surface and sometimes offering fluctuation; a little after a linear fissure is remarked there, or a little ulceration from which oozes a limpid or sanguinolent fluid.

Third Period.—The ulceration which is speedily established is ordinarily produced by the softening and dissolution of the cancerous tissue in its superficial portion. There is often an internal hæmorrhage or an exterior violence which determines the opening of the tumor by fraying the epidermis and tearing its atrophied tissues by tension and compression; the liquid contents of the purulent or sanious foci which were formed in the interior escape, often mingled with blood, and the ulceration is but a consequence of the rupture. From this moment destruction progresses also from without inward. Under the superficial ulcers we suddenly see a deep hole formed which is rapidly transformed into a vast ulcer. Sometimes the ulceration does not begin in the cancer itself; it commences in the skin which covers it and which becomes the seat of a chronic congestion, of a stasis, and an inflammation. The epidermis falls, the dermis, of a livid red is covered with humidity, the exudation which flows out softens and macerates the neighboring parts; a deep ulcer, fistulous or rather extended in surface, is formed. Finally, the loss of substance may be produced by the atrophy of the distended integuments, the nutrition of which suffers from the compression of the vessels, or a veritable mortification supervenes, and there are formed vesicles and eschars which speedily fall. (Kœhler.)

The cancerous ulcer, when once established, extends without ceasing, as well superficially as deeply, with a very variable rapidity; its borders thicken, harden, are inverted, and every day put on a more livid aspect. The ulcerated surface is covered with red vegetations, and secretes a sero-purulent, puriform or ichorous liquid often in great abundance and of an excessively fetid odor. The ulcer also frequently becomes the seat of a violent hæmorrhage which sometimes calms the insupportable pains of this period. The patient is weakened, emaciates visibly, presents in different parts of the body, and

particularly in the arm of the diseased side, œdematous swellings. Then supervenes a continual anorexia, with insomnia, an almost uninterrupted fever and attacks of dyspnœa; finally the patient succumbs to a general marasmus, to collaquative diarrhœa, or to a secondary cancer of the internal organs.

Terminations.—Although it is recognized that the almost constant termination is death, still certain cases appear to prove that cancer of the breast has sometimes so slow a progress that it does not shorten the life of the patient affected therewith. Most of these observations concern women in whom the disease is not declared until at a very advanced age. In certain very rare cases the cancerous parts have been attacked with mortification, falling off and thus producing a veritable cure. On the other hand, we doubt the accuracy of the cases reported by some authors who say they have seen the cancerous ulcer assume a benign aspect, without gangrenous destruction, and cicatrize without there afterward being any return. Perhaps the **atrophic cancer** of the breast may make a single exception, although it is not at all susceptible of a cure properly speaking. The scirrhi of this variety are extremely dry, of a cartilaginous consistence; when they have attained a certain volume they shrivel; the skin which covers them folds up, presents numerous furrows, and small prominences, and the nipple enters very deep into the gland. It is at this epoch that the ulcerated surface may often dry and cicatrize; but at the same time, the patient feels in the depths of the organ the most violent pains; she is seized with an intense fever and succumbs ordinarily at the end of a short time.

Authors do not agree upon the medium duration of the disease; according to our observations, it varies within the most extended limits; death may supervene even two or three months after the first appearance of the tumor; while in other cases it may be delayed for many years. A single or repeated operation has, without contradiction, a very great influence on the duration of the disease.

Diagnosis.—We are persuaded that the sure and undoubted diagnosis of a mammary tumor, not yet ulcerated, is possible only by an anatomical examination made after extirpation; hence we do not doubt that with all the prudence and all the experience

possible it may happen that we may suspect the presence of a cancerous affection where it does not exist, and *vice versâ*, a cancerous tumor may be taken for a benign one. Still the following data will be useful and should be considered, to determine as much as possible the nature of a tumor in a given case. Cancer is ordinarily from its commencement little mobile; it adheres intimately to the adjacent tissues; it is speedily complicated with swellings of the axillary glands; it has much tendency to invade the integuments, which from the commencement determines the retraction of the nipple, and the subsequent ulceration of the skin; its increase, compared with that of other tumors, is much more rapid; at the second period of the disease the general state of the health always suffers; finally, the advanced age of the patient, and the appearance of tumors in other parts of the body are also of great importance for the diagnosis.

Among the maladies which may be taken for mammary cancers, we will cite the following.

Sometimes there is developed in the breast, without cause or in consequence of the action of cold, a blow, pressure, or disorders of menstruation, a hard tumor, uneven, painful, which consists in a tumefaction due to the **hyperæmia of some of the glandular lobes.** This accident cannot for a long time be mistaken for a cancer, because, 1st, the tumor ordinarily disappears in a little time after the employment of simple means, as, for example, the use of resolutive fomentations, frictions with iodine, etc.; 2d, it is often perceived at the same time in both breasts; 3d, there are sometimes several of these tumors developed; and 4th, from its first appearance it is rather painful, which, as we have said, is never the case with cancer.

The mammillated **indurations** which remain after the puerperal **inflammations of the breast,** sometimes present, on a superficial examination, a great analogy with an already advanced scirrhous tumor. But we shall not be long in doubt as to the nature of the malady if we regard the antecedents which show the relation between the tumor and a preceding inflammation, the age of the patient, the great tenderness of the diseased part to the least contact, the diminution which is

ordinarily shown at the end of a few weeks, and the happy effects of antiphlogistics, derivatives and discutients.

Simple **partial hypertrophy** of the gland always forms, when it has not acquired a great size, mobile tumors, which adhere neither to the skin nor to the wall of the thorax. There are often formed from the outset several of these tumors, which increase but very slowly, and are not generally accompanied by tumefaction of the axillary glands, which, when it exists, is only transient. Cancerous tumors, on the contrary, present from the commencement a very feeble mobility, which completely ceases so soon as the neoplasm has attained a certain size, for it soon contracts numerous adhesions with the skin and with the subjacent muscular layers; it rarely commences with the formation of several tumors; finally, the swelling of the neighboring lymphatic ganglia, and the general affection of the entire organism afford valuable information.

The tumors which result from ectasia of the milk ducts are ordinarily in the relation of causality with the puerperal state; they are for the most part somewhat painful from their commencement, and are accompanied by a transitory tumefaction of the glands in the vicinity. The puerperal hyperæmia in subsiding causes the increase of the tumor to stop; it diminishes and remains stationary for years without showing any tendency to adhere to the skin or to the pectoral wall.

For the differential diagnosis of cancerous tumors from sarcoma and cystosarcomata, see what has been said in treating of these affections in other organs.

Prognosis.—When once the cancerous nature of the neoplasm is determined without doubt, the prognosis cannot but be very unfavorable; still, we should have regard to some circumstances which in an incontestable manner influence the greater or less rapidity in the march of the disease. Thus cancer destroys young women much more rapidly than the elderly, among whom we sometimes observe arrests of many years, or at least so slow a progress, that the patients do not give any attention to the symptoms of the disease. We have remarked that young women succumb very quickly when they suffer at the same time from anomalies of menstruation, which occasion more or less continued congestions in the breasts. Everybody

knows that the medullary form takes much less time to run through all its phases than fibrous cancer; that it much sooner attacks the constitution, and gives rise more often to secondary cancers in the internal organs. It is equally established that young women more often present the medullary form, while scirrhus more commonly attacks the old. Encephaloid from its outset shows less consistence, or it softens more quickly; it is doughy or elastic, and is more often met with at several points at the same time, while fibrous cancers are generally solitary. When there exists only a tumor of a medullary nature, it speedily divides into lobes, recognizable to the touch, while scirrhus is not ordinarily lobulated; the most voluminous cancerous tumors are generally medullary. The scirrhous tubercles soon contract adhesions with the integuments, and often cause, long before the ulceration, the retraction of the nipple, of which we have spoken. This phenomenon is rarer in medullary cancers; the nipple often thickens and enlarges by an infiltration of cancerous material; the rupture of the skin is often preceded by such a considerable softening of the tumor, that to the touch a veritable fluctuation would seem to be perceived, and the ulceration takes place without the neoplasm having previously contracted adhesions to the skin. The scirrhous ulceration has ordinarily its borders inverted, painful, hard and fringed; the bottom presents deep crevices filled with a fetid sanies, while the encephaloid ulcer has its borders depressed and less sharply defined. It is rounder and less shallow, and the bottom is frequently covered with numerous vegetations, bleeding at the least touch; it has great tendency to mortification and to the sloughing of the gangrenous portions. In making a prognosis, regard should be had to the general progress of the disease. When the tumor remains hard for a long time; when it increases but slowly, or when it even shows a complete arrest in its development; when it occasions but little periodic pain, felt only at long intervals; when there is not noticed upon the skin of the diseased mammæ the alterations which we have described; when the tumefaction of the neighboring glands is long delayed; finally, when the great functions of the economy are not essentially altered, we may hope to preserve the patient for a long time. The treatment

may also have the most unfortunate results when it consists in the use of irritating medicaments, which congest the diseased organ, as for example, fomentations, plasters, unguents, etc.

Treatment.—So long as any doubts exist as to the nature of any mammary tumor, or at least when it cannot be presumed with great probability, we think it reasonable to prescribe a moderate antiphlogistic treatment, which, if it exerts no beneficial influence, may be replaced by the medication which we have indicated in speaking of benign tumors. But it is requisite to carefully shun such medicaments as by their too irritating action might provoke a severe congestion of the diseased organ. If in its turn this treatment is not followed by any result, there only remains the choice between the operation and a purely expectant treatment. If from any cause the operation is not possible, we may recommend to the patient a regimen corresponding to her constitution and manner of life. The diseased breast should be surrounded with a hare skin, and preserved from all exterior violence, such as pressure, friction, cold, etc. As to extirpation, we think it is always better in doubtful cases to remove a benign tumor, which does not itself require the operation, rather than to leave the patient exposed to all the dangers which inevitably menace her if the tumor is cancerous.

We will limit ourselves here to describing the most important modes of treatment of mammary cancer, referring the reader for more ample details to the works on special pathology which treat more thoroughly of this matter.

We will in the first place mention the methodical **compression** of the breast, proposed by Young and Récamier. The cases of radical cure effected by this method are scarcely authentic. Still we have ourselves proved that compression may much calm the violent pains which accompany cancer, and may sometimes notably diminish the volume of the tumor, a result which is of great advantage for a subsequent operation. We employ the bandage of Scutin, for it renders all the services attributed to the more ancient apparatus, which for the most part are sufficiently complicated. The **application of cold,** recommended by Arnott, deserves consideration, not only because it calms the pains, but also because it is an excellent

means of obtaining the rapid detumescence of the breast, when it is engorged, very red, and very sensitive to the least touch.

Among the local means which act by the destruction of the cancerous tumor, **the application of the red-hot iron and of caustics** are the most important. The first is no longer used in our day. It is employed only to stop a violent hæmorrhage proceeding from a carcinomatous ulcer when it cannot be mastered in any other manner; even for the destruction of the neoplasm, it is incontestably inferior to caustics. Among the latter **arsenic** occupies the first place; arsenious acid especially exerts a very intense caustic action; still we should not forget, that there have often been observed after the application of these medicaments more or less grave phenomena of poisoning, sometimes followed by an unfortunate termination. This is why it is not at all applicable to very extended ulcerations, but only to small wounds which only require a single application of caustic; we never employ more than half a drachm of arsenic at a time; it is also necessary to take care to protect the surrounding parts by thick layers of sticking plaster, and to add some narcotic to the caustic powder, to moderate as much as possible, the often very violent pains which precede the fall of the eschar. **Chloride of zinc** is preferable to arsenic because it does not easily exert any topical action upon the organism. And furthermore, it has the advantage that one may in advance, calculate more exactly the thickness of the eschar, as well as the time of its fall, which takes place in about ten or fifteen days, while this is not effected until the end of twenty or twenty-five days, when arsenic is used. **Acid nitrate of mercury,** which many physicians have proposed, has not found many advocates because its application is accompanied not only with violent pains, but also with dangers from mercurial poisoning. **Nitrate of silver** is useful only for little fungous vegetations, or after the operation to hasten the cicatrization of the wound. **Caustic potash** has been abandoned, because it occasions sometimes a very violent capillary hæmorrhage. **Mineral acids** are equally out of use, by reason of their too extended action, and because after their application the ulcer does not uniformly put on an equally good aspect; it does not take the same lively red color, and always secretes more than

after the application of the preceding caustics. **Solidified nitric acid,** the use of which has been proposed by Révallié, seems alone to be an exception, and deserves to be tried more often, because according to our present experience, the fall of the eschar takes place early, so that by this means it is possible to destroy very voluminous tumors, and to prevent their return. We do not think that the proposition which has been made to destroy cancer by the **inoculation of the gangrenous sanies** ought ever to be executed, because when the inoculation succeeds, it is never possible for the physician to limit as he would desire the progress of the mortification.

As to what concerns the employment of caustics in general, we do not think them indicated when the patient will consent to the extirpation and when this is still possible, for it is certainly much more easy for the surgeon to remove all the diseased tissues, in performing the operation, than in applying a caustic which, when the tumor is considerable and very deep, ought to be employed with many intervals and unsparingly if we would have any hope of attaining the desired end. Besides the little certainty of this method, it has yet the disadvantages of being very painful and much more affecting the organism than extirpation of the tumor. Cauterization has been proposed in cases where extirpation is scarcely any longer practicable, by reason of the enormous volume of the tumor or from other complications; but we should remember that then the caustic ought to exert an energetic action not only in depth, but also at the same time over an extended surface, and that then it frequently happens that in consequence of this violent irritation, the disease makes rapid progress, and in a very short time produces death. The use of caustics is still less proper in the first period of the disease, for it is certain that for a small tumor, extirpation is far the most simple procedure, the most prompt and the least painful; furthermore, the congestion which cauterization always provokes may cause the cancer to make a speedily fatal progress.

We should not therefore employ caustics except when a cancerous tumor, not too voluminous, is transformed into an ulcer which extends more superficially than in depth, when there is some hope of entirely destroying the neoplasm, and when the use

of the knife is prohibited either by the patient herself or by some accidental complication of the malady. Superficial cauterizations have only a very palliative action, and cannot be of any utility except when the surface of the ulcer is covered with numerous fungous granulations and furnishes either a very abundant secretion which enfeebles the forces of the patient, or a fetid and corrosive sanies.

Regarding **extirpation** of the tumor, or of the entire diseased breasts it is rejected by a good number of distinguished surgeons, because, say they, it only hastens the march of the disease to a fatal termination. In fact, it is incontestable that in numbers of cases, the cancer which had advanced but slowly before the operation, returns immediately after to make very rapid progress. But, so long as it remains proved that in certain cases, in truth very rare, operatory medicine has effected a radical cure of mammary cancer, and that there are patients who, after the operation, remain freed from the malady for years; so long as it is true that we do not possess any other means of making this disease completely disappear, extirpation must occupy an important place in the treatment of cancer. In our opinion it is indicated, and ought always to be performed in the following cases: 1. When we have a mammary tumor of a doubtful nature, and which not only has resisted obstinately all mechanical and therapeutical discutients, but which still has, during and after their use, incessantly increased in volume. 2. When the growth is not very rapid; for experience has demonstrated that the cancers which develop but slowly are those in which we may indulge more hope of a radical cure, and that in such cases the relapse, if it occurs, is the longer delayed. 3. When the neoplasm exists by itself, is not complicated with any tumefactions of the neighboring lymphatic ganglia, or when at least this tumefaction is only transient and when the general symptoms of a cancerous diathesis are not yet well marked. Finally, 4. When the patient has not yet passed the age of sixty years. We should not, however, perform the operation when the tumor presents a very rapid growth; when there is tumefaction and induration in the glands of the axillæ; when the tumor has contracted firm adhesions with the pectoral muscles or with the ribs and sternum;

finally, when we have an exhausted, feeble, and very aged patient.

The choice between the extirpation and amputation of the whole breast depends always upon the peculiarities which the disease presents. For small circumscribed tumors the majority of practitioners prefer simple extirpation. They amputate, on the contrary, the whole breast when the glandular tissue is extensively infiltrated with the cancerous matter, when it is important, which is often the case, to remove also the lymphatic ganglia which have undergone degeneration or to divide extended adhesions of the neoplasm with the anterior wall of the thorax.

The direction of the incision depends upon the object of the operation. When it is made only for the enucleation of a tumor of moderate volume, circumscribed and not adhering to the integuments, we should make a simple incision parallel to the longest diameter of the tumor; but if it is necessary to remove the entire breast, to excise also a portion of the skin, or at the same time to extirpate some axillary glands, it will be best to make two elliptical incisions directed obliquely from upward and outward, downward and inward. While an assistant stretches the skin, the surgeon cuts, with the aid of a convex bistoury, in such a manner as to penetrate with a single cut through the skin and sub-cutaneous cellular tissue. If but one incision is made, we commence by dilating the skin sufficiently from both sides to render the tumor accessible to the knife. Then an assistant seizes the two lips of the wound, and holding them separated while the operator holds the tumor with the fingers of the left hand, and completely dissects it from below upward; afterward the wound is examined and all the parts of the diseased tissue which remain are carefully removed with a bistoury or curved scissors. In the amputation of the whole breast and in the extirpation of voluminous tumors, it is well to penetrate quite to the pectoral muscle in dissecting the part which is wished to be removed by incisions from below upward. If it is noticed that the muscle itself is attacked, we should not neglect to excise the degenerated parts; if an induration of the axillary glands is met with, it is necessary also to remove them by simply elongating the first elliptical incision, if the distance

is not too great, or by making a new incision when the indurated axillary ganglia are far removed from the breast. It is not till after the complete extirpation of the neoplasm that we, by torsion or ligature, close the divided vessels; however we should take care not to place too many ligatures, which would disturb or completely prevent union by the first intention. So soon as the hæmorrhage is stopped, if the wound is not too great, too angular, and if there remains a sufficiency of skin to cover it without too much distending its edges, we should close them by suture; the inferior angle should alone be left gaping for a space of an inch to allow the secretions to flow away; through this orifice we should also pass the ligatures. If the integuments do not meet, we cover the wound with a fenestrated compress, smeared with simple cerate, and with lint. Then the whole is fixed by means of a restraining bandage. [The American fashion is to draw the parts together by means of long strips of adhesive plaster, over which may be laid cloths wet with cold water.] At the end of three or four days this dressing is renewed, then afterward once a day for a week. Later the wound should be covered with cerate, and kept clean by sprinkling it frequently with tepid water. If the cicatrization makes only very slow progress, when fleshy granulations are raised too much above the surface of the wound, they should be touched with solid nitrate of silver.

In closing, we will say a few words upon the symptomatic treatment of mammary cancer. Frequently the pains which accompany the first period of the disease are due to a periodic congestion of the diseased organ, which is then tumefied, red, and very tender to the least touch. We should combat these symptoms by the application of a few leeches around the breast by compresses with cold water, and by the internal use of a purgative salt. If the pain is provoked by the pressure which the neoplasm by its rapid development exerts upon the nervous filaments, we should have recourse to the topical and internal use of narcotics. If the ulcer is already formed, we should calm the pains by painting it with diluted tincture of opium, by sprinkling it with morphine in powder, or by covering it with compresses moistened in some narcotic liquid. Against the **itching** and **smarting of the skin**, often very painful symp-

toms, we should employ frequent lotions of warm oil and various narcotic unguents. For the **treatment of the ulcer** the greatest care for cleanliness should be observed; if it does not secrete much, we should cover it with simple cerate, and in the contrary case, with a thick layer of lint. When there is an abundant secretion of an ichorous and fetid fluid we should wet the lint with a diluted solution of chloride of lime or balsam of Peru, or else powder the ulcer with pulverized linden charcoal. The **hæmorrhages** which are sometimes declared demand the use of cold, of various styptics (ergotine, tannin, powder of Hesselbach, etc.,) and in extreme cases the actual cautery. The **painful tumefactions** of the lower part of the diseased side will diminish by simple compression with a bandage.

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§ 12. *Hæmorrhages.*

We rarely meet with **hæmorrhages from the orifices** of the breast, except among women who have menstruated but little or not at all, and as besides these sanguineous discharges almost always present a periodical type, it is natural to consider them as supplementary courses; of which we have already spoken. Generally these hæmorrhages are preceded by a more or less marked hyperæmia of the breasts, characterized by tumefaction, redness, heat, and abnormal sensibility of these organs. The quantity of blood which is effused varies much, sometimes there only oozes a few drops, at other times the loss of blood is so considerable as to be followed by symptoms of

anæmia. The hæmorrhage generally takes place from both breasts and the accidents which have preceded it moderate as soon as it appears. For treatment we refer to what we have said upon **vicarious menstruation.**

The hyperæmia of the breasts which accompanies the periodic maturation of the ovules, sometimes also gives rise to the rupture of some vessels, and **an extravasation of blood into the glandular parenchyma** or into the cellular tissue which envelops it. The women most disposed to these accidents are those who suffer from amenorrhœa, or who have their courses scanty, and whose breasts during menstruation are habitually the seat of violent congestions; it may, furthermore, easily be conceived that these extravasations are not always in relation with the ovarian functions, and that they may quite as well be caused by exterior violence, a blow, contusion, pressure, etc. The simple ecchymoses of the skin and the sub-cutaneous effusions of blood are of no importance, but it is proved that the hæmorrhages which take place in the parenchyma of the gland itself may be the cause of the formation of the most varied pseudoplasmata of simple and composite cysts, of sarcomata, cystosarcomata, and even of cancerous tumors. For the treatment we advise the early opening of every collection of blood of any size whether it be sub-cutaneous or parenchymatous, and to prevent a new accumulation of blood, by applying a compressed bandage, and by injecting cold water or some astringent liquid. But if the tumor is small, quite deep and does not evince fluctuation, we must have recourse to the topical application of dispersing and resolving medicaments; it is unnecessary to say that the concomitant anomaly of menstruation should not be neglected.

§ 13. *Neurosis of the Breast.*

A.—*Hyperæsthesia of the Skin.*

This is one of the rarest diseases of the breast; it seems, like the hæmorrhages, to have a certain etiological connection with menstruation. The diseased breast presents on exploration no abnormal symptom, only it is excessively tender to the slightest touch, while a firm pressure may often be very well supported.

This affection, which is most often observed in chlorotic and hysterical women, is distinguished from intercostal neuralgia in that to determine the pain, it is always necessary that there be an exterior provocation, such as contact or friction of the skin; while neuralgic pains are always spontaneous and independent of exterior influences. To combat this accident the internal use of anti-hysteric and anti-chlorotic medicaments has been recommended, to which may be joined frictions with narcotic unguents and the application of vesicatories or leeches. We have obtained the best results from the prolonged use of iron, frictions with chloroform liniment, and the application of the compressive bandage of Seutin.

B.—*Anæsthesia of the Skin.*

This is sometimes a symptom of hysteria; it is observed more frequently still when voluminous tumors exist, which distend the skin and thus diminish the sensibility. It has only a secondary importance.

C.—*Neuralgia of the Breast—Mastodynia.*

This appears in two different forms. In the first the breast is the seat of neuralgic pains, more or less intense, without the most exact examination being able to discover the slightest alteration in the organ. All observers agree in saying that this affection is especially met with in young females of twenty to forty years, and that the pains ordinarily increase before menstruation and sometimes even only exist during this period. We can also add that we have observed mastodynia almost only in chlorotic or hysterical women, and that it is sometimes accompanied with a veritable intercostal neuralgia. It is generally a very long affection, which resists during months and even years, all the means employed; without, however, endangering life. The number of medicaments recommended against this disease is immense. The topical and internal use of narcotics has been especially recommended; also lotions with a solution of caustic potash, frictions with the tincture of cantharides, of the antimonial pomade as well as setons, acupuncture, compression, and the sub-cutaneous section of the nervous filaments. That which, in our opinion, serves the best is the

prolonged use of preparations of iron and frictions with chloroform ointment; in some very obstinate cases we have obtained a cure by the prolonged usage of Fowler's arsenical liquor.

Sometimes, besides the neuralgia, the presence of little nodosities excessively tender to the touch are recognized, which are also spontaneously the seat of very severe pains, appearing in paroxysms, and radiating to a distance (**irritable tumors of the breast,** A. Cooper). Until now no exact pathological preparation has demonstrated with certainty the nature of these tumors; they seem to be due to partial hypertrophies of one or more lobules of the gland. According to the statements of the majority of observers, this form of neuralgia appears only at the epoch of menstruation. Still, we have often observed it at other times. By preference, it attacks women who are hysterical, chlorotic, and subject to catamenial irregularities. The left breast appears to be most often affected; sometimes both organs are affected at the same time. These small tumors are generally hard, well-defined, very mobile, and rarely larger than a pigeon's egg. They are developed very slowly and ordinarily continue, or at least do not much diminish, even when the neuralgia has disappeared. The treatment is the same as that of simple mastodynia.

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THE END.

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